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# PCFormat

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## UNLEASH HELL!
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Will Wright aims high, p22

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#193 November 2006
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**PCFormat**

## THE WORLD'S GREATEST PC MAGAZINE

# in your mag

#**193** November 2006

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# Land of the Free

We show you how and where to get the best gratis stuff out there

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# Lightning laptop

The fastest gaming laptop ever. But is it enough to take one the desktop über-systems?

**80** HD DVD v Blu-ray
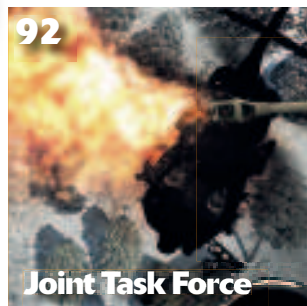
**92** Joint Task Force

**100** Company of Heroes

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### Buyer's Guides

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# DO THIS

## Spend some quality time with your PC

# Coded revolt

Create your very own multi-format game with our guide to coding

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# PCFormat
# Welcome

Fast graphics cards. World of Warcraft. Bacon sandwiches. PCFormat. Contrary to popular quotation, the best things in life aren't always free, nor, necessarily, should they be. It doesn't follow, though, that paying for something makes it better. Alec's final task before he left for a life of freelance writing was to demonstrate that it's possible to do any PC task without spending a penny on software.

Encouraged by his success, he even went as far as to try out a couple of free hardware offers, which would explain why Future Publishing's spam filters started to glow red hot shortly after he walked out the door for the last time.

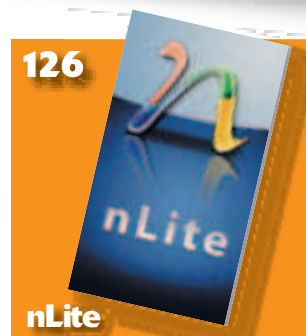Having saved all that money on office suites and web protection software, what better way to spend it again than on customisation? Check out James' amazing home-made USB guitar on page 124, then head off to The Early Learning Centre to pick up the bits you'll need to build your own axe.

If you like your games a little more serious, then perhaps our look at Medieval 2: Total War is more your flagon of mead? It might be the best strategy game ever.

Enjoy the issue,

**Adam Oxford, Editor**

---

## Alec Meer, Deputy Editor

**No tears, no shouting,** not even a lot of whooping. Just a slight twitch in his left eyelid demarked Alec's last month on *PCF*. And even that was just because of a decision to use Vista as his primary OS. "It's. Fine," he intoned whenever questioned as to how he was faring, and turning puce if asked whether he'd managed to get *Dungeon Keeper* working.
**Achievement of the month** Just about holding back the tears when he heard about Steve Irwin. Oh, and crawling off into the sunset after 71 glorious issues of *PCFormat*.

## Al Bickham, Technical Editor

**With no graphics cards** to benchmark this month, Al finally went mad, so we took him outside and shot him. Fortunately, for him at least, the blast was deflected by a TFT monitor. Given reprieve, he scampered off to the pastoral environs of Milton Keynes to test the latest PSUs at a specialised facility. Technical fix administered, he returned to us sane and whole.
**Achievement of the month:** Dismantling his motorbike and putting it back together again. Makes a change from PCs...

## James Carey, Games Editor

**Pie-fingers Carey multitasked** his buns off this month, creating bespoke peripherals one minute (see the *Frets on Fire* workshop), interrogating games developers the next and still finding time to schmooze with the BAFTA glitterati. The unique turn-based beat-'em-up *Toribash* seems to have occupied a frighteningly high percentage of his time though.
**Achievement of the month** Orchestrating a pan-continental team for the *Medieval II* feature on p48

## Jeremy Laird, Technology Writer

**Toe-curling triumphalism at the** news of the departure of *PCFormat*'s fearless deputy leader aside, this month has served up some genuine excitement. Not least of which was a first hands-on experience with both Blu-ray and HD-DVD content running on undoubtedly the finest HD platform on the planet, the good old PC. It's been a very long time coming, but for *PCF*'s in-house HD addict it's the start of a beautiful friendship.
**Achievement of the month** Beating the silly screen capture restrictions on HD-DVD and Blu-ray to bring you the feature that adorns page 80 of this fine magazine.

# Front end

## THE BEST OF THE MONTH IN COMPUTING

### Eye Candy
**Dream screen**

An HD TV and a PC in one glorious package? It sounds too good to be true doesn't it? Well this two grand telly manages to pack an extremely reasonable media centre PC into an achingly desirable 32-inch flatscreen form factor. Dual TV tuners and 400GB of storage space round off media duties, while only the X1300 graphics hold back gaming performance.

**Under the hood**
**CPU** Pentium D 2.8GHz
**RAM** 1GB DDR2
**Display** 32-inch, 1,366x768 (720p)
**Storage** 400GB HDD
**Optical** DL DVD writer
**3D Card** ATI Radeon X1300
**Extras** Gyroscopic remote control, 2 x hybrid TV tuners, IR blaster for set-top box remote control

### Rocking out
Our Games Ed James Carey has been getting his hands dirty this month, building a custom game controller from scratch. Using only an Early Learning Centre toy guitar, a butchered Logic 3 joystick and a rare talent for fiddling, he managed to fashion a working axe for free *Guitar Hero* clone *Frets on Fire*. Inspect the damage on p124.

# Vista's
## last mile

After months of waiting, broken promises and dodgy builds, RC1 is here. Can Microsoft see clearly now the delays have gone?

**Y**es folks, it's true: Vista Release Candidate 1 has arrived. That's a feature-complete, potentially good-enough-to-sell version of the first new Windows in five years, with only bug fixing left to go before its mooted January 2007 release date. The question is, of course, is it really ready for understandably wary consumers?

"We've made some adjustments, added more device drivers, and enhanced performance," Jim Allchin, Co-President of Microsoft's Windows Division claimed about the changes made from this June's Beta 2 version of Vista. Superficially, it's very hard to tell what's new, outside of the vaguely funky new cursors and the pretty-but-pointless networking centre we revealed two issues ago. It is noticeably quicker than Beta 2 though, and significantly more stable, once you're past the initial horror of installing beta motherboard drivers.

### OPEN WINDOWS
Crucially though, is it ready? Well, more or less. Most of the headaches encountered are pretty much in keeping with those of a fully-patched Windows XP install (in our first day of using it, we suffered lock-ups, blue screens and 'recovered from a serious error' alerts) rather than being a special kind of new brokenness, and bar some occasional chugginess, it's definitely fine for day-to-day use as a primary OS now. Or, depending on how close to your own personal definition this is, "looking at rubbish on the internet and playing *World of Warcraft*." Gaming performance, in fact, is so close to XP now as to be almost indistinguishable –

> **"Noticeably quicker and more stable than Beta 2"**

**Alec Meer**
GETTING OUT OF DODGE

## One last poke in the ribs for MS, and then home

I'll be off, then. After five and a half years on PCF, I'm setting sail for the uncharted waters of freelance writing. I've been through three editors and four redesigns, attended just one covershoot, destroyed at least half a dozen graphics cards and have been sent one mousemat with rubber boobies on it. It's been an education. I'm going to miss this magazine something chronic, but a change is necessary if a descent into madness is to be avoided.

Something I've not been able do before I go is make up my mind about Vista. RC1 (see over) is certainly no longer the broken and dull offering the betas were, but after so long it's hard to get truly excited about it. And don't give me that "it's not fair to judge unfinished software" crap – MS knows that sticking 'beta' on the end of something creates a different effect than it used to. Take a look at its Live services, all suffixed with 'beta' so people using them will feel they're in an exclusive club. The Vista betas have only created negativity. It's a good OS system, but not enough so to make up for the harm that's already done. But anyway, that's enough from me. Cheerio.

**Power Windows**
Yes, it's that flippy thing we always show again. Vista now has a quickstart button to activate programs and everything.

**The Office**
*Office 2007* running in Vista RC1 – notice that it each now has a matching start button.

3,127 points in *3D Mark 06* for XP versus 2,954 for Vista RC1. Of course, the difference is going to vary wildly from title to title – and compatibility problems do mean some games won't run or even install properly for now, or perhaps pause, while the formerly troublesome Media Center now runs with relative reliability. But still the question hangs – is it worthwhile? Well... it's certainly pretty. It feels like a more pleasant environment. And, er,

## "The single, solid-gold reason to upgrade to Vista isn't there – yet"

forever. The onus, after all, will be on a game's creator and not on Microsoft to update it for Vista.

The various and charming 3D effects finally operate without noticeable *Windows Photo Gallery* is almost as good as *Picasa*. And, er, DirectX 10! Except we can't see that in action until supporting graphics cards and games arrive. And, er, User Account Control! It's really useful if you don't have any common sense! And, er, instant searching! Which is entirely unlike *Google Desktop Search*. *Entirely*.

### INTERFACE ISSUES

The fundamental failure of Vista is that a seasoned PC user will have already introduced most, if not all, of its key features into XP with an array of free or torrented software. The result may not be quite as slick or as dummy-orientated, but it damn well does the job. The changes to the interface, though intended to be more intuitive, are also a layer of obfuscation over the way we're used to doing things. Why, for instance, does changing the system time now require going one more sub-menu in? And why haven't there been minor changes, like the Add New Hardware wizard no longer trying to browse the floppy drive for drivers by default, or *System Restore* being somewhere logical like in Control Panel?

People aren't down on Vista purely because it's Microsoft, but because a single solid-gold reason to upgrade isn't there – yet, anyway. The leap from 9x to XP was known in advance to be profound, because of the move from the 9x codebase to the more stable NT, and to a system not based around a lurking DOS hangover underneath. Vista will be a success, because it'll be preinstalled onto every new PC, but its worth will only be ascertained after time has told whether it's safer.

On a positive note, the improved speed and reliability of RC1 means there are now, at last, very few reasons to actively avoid upgrading to Vista...

By the time of publication, RC1 should be available to everyone who tried Beta 2, and also those who didn't – see **www.microsoft.com/windowsvista** for more. **PCF**
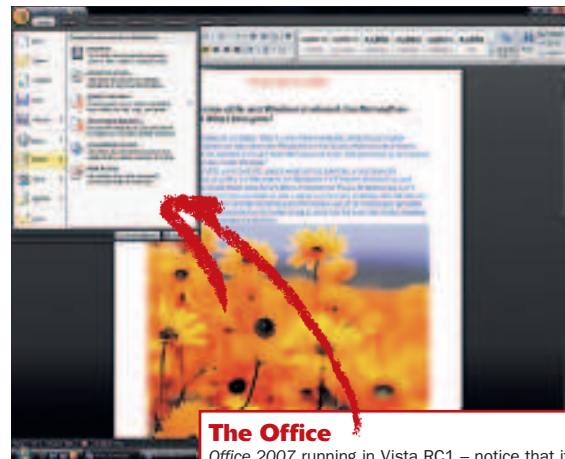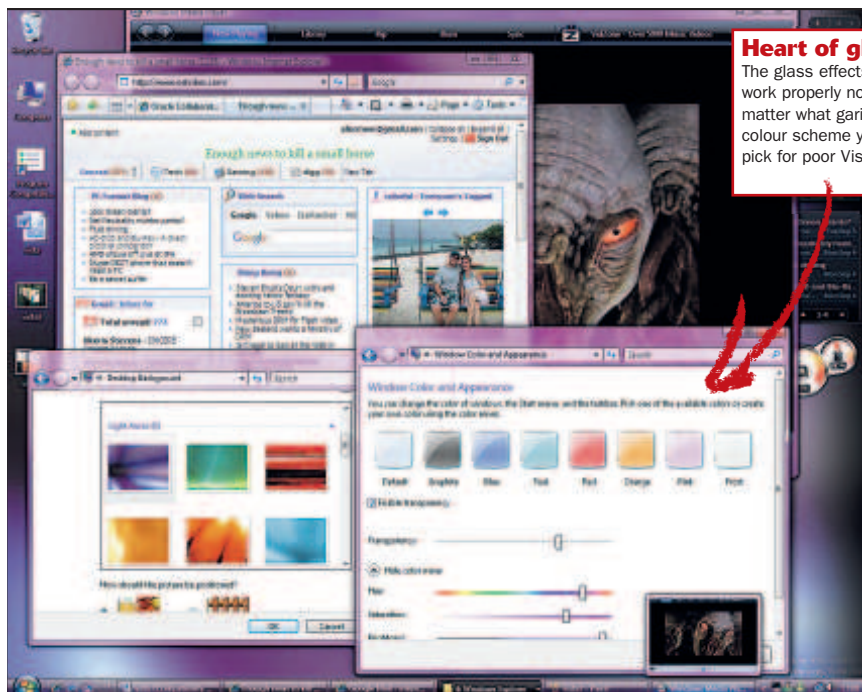
**Heart of glass**
The glass effects now work properly no matter what garish colour scheme you pick for poor Vista.

**THEY SAY** "We made changes to User Access controls... Microsoft acknowledges that Beta 2 prompted users too often." MS fesses up to hand-holding horror in the RC1 patch notes.

This is the kind of thing that makes even hard-nosed PC hacks like us weep with joy.

*"We could virtually add as many cars as we wanted to the movie"*

# Rush hour

## And you thought the traffic on the way to work this morning was bad…

**You'll forgive us for** being wary when perusing amateur gaming videos. After all, there have been enough videos of hilarious *Counter-Strike* corpse humping and people detonating *Battlefield 2* bombs to the strains of *The Benny Hill Show* theme tune to last us our collective lifetimes. Still, despite the *Fraps*-brewed poison that taints the majority of gaming video sites, every so often something rather special hoves timidly into view.

The latest piece of amateur gaming cinema to pique our interest is *1K Project II*, which was created using *Trackmania Sunrise* (**www. trackmaniasunrise.com**) and its powerful replay editor. The concept behind the video is simple, 1,000 cars on the same track at once, but the entire video is masterfully, breathtakingly executed.

We had a chat with the video's creator, French air traffic control student Guillaume Klien, about the logistics of that many vehicles on track at once. "It all started with *Trackmania Sunrise*, when we discovered that the new replay editor could output videos exactly at the desired framerate," he explained. "We could make maps as heavy as we wanted and we could virtually add cars by merging the replays together. This is how we can have as many cars as we want on almost any machine."

Merging 1,000 replays was not without its challenges, though, as Guillaume revealed. "First I tried with maximum settings but the game kept crashing, then I decided to reduce the shadow detail to medium. This time it worked, but was far too slow – after one whole night I didn't even get a single frame. I finally lowered the shadows to the minimal setting and this time it worked." See the fruits of his labour at **tinyurl.com/ewh8k** and read the full Q&A at **blog.pcformat. co.uk**.

Picture © Kobal

# Messenger buttons up

## A new panic link to safeguard chatting kids

**Microsoft is** reportedly adding a panic button to *Windows Live Messenger*, designed to combat evil-doers using the service to 'groom' children. Clicking the **Report Abuse** button alerts the Child Exploitation & Online Protection Centre (CEOP) to any suspicious or inappropriate activity, with information passed directly to the Police if necessary. If

a case is accepted, the CEOP will guide the victim in collecting evidence and capturing information about the perpetrator.

What remains to be seen is exactly how often it will actually be necessary to pass on such information, as we can imagine over-emotional chatters hitting the button in revenge for an offensive comment or minor disagreement, or nervous

teenagers reporting their online buddies for asking what they're up to that evening, or young children pressing it just to see what happens. Multiply the chance of Abuse-Button-abuse by the estimated 11 million users of the service, and the CEOP may well have its work cut out telling the real alerts from the hoaxes.

## 47 STAT!

The amount of terabytes that the video files on YouTube swallow up, as of August. The internet's most popular site has bandwidth costs of around $7 million per month, too.

# Home of tomorrow

## Experts predict what our living room will look like in 2020…

**A girl, a glass of wine and a button to cater for your every whim… 2020's looking good.**

**T**he lovely piece of IKEA furniture that our model Vicky is draped over is the 2020 Future Vision chair.

According to a report commissioned by Telewest, soon our entire home will be controlled from a single hub integrated into your chair. Presumably with no need to leave the sofa, hardened couch potatoes will soon be integrated into the seat as well. The panel of futurologists who came up with the furniture design above included an expert in flexible screens and display technology and sometime *PCF* writer/Channel Five celebrity Jason Bradbury.

Other predictions included the death of 'appointment' TV with users instead choosing from either downloadable shows or live streams from sporting events or concerts. Wall screens and video tiles will have removed the need for a television box, unless you have a holographic TV that is. Even DIY has fallen under the crosshairs with the panel predicting doom for wallpaper in favour of projected images.

Of course, *PCF* had its own taste of things to come when we nipped over to Intel for a look at the next step in its *Viiv* programme. With version 1.5

> ## "Soon our entire home will be controlled from a single hub"

of the software stack, the emphasis is clearly on setting up media savvy home networks. Viiv-compatible set top boxes are currently in development by third parties, enabling easy wireless setup, streaming media and juggling of DRM. Best of all, they perfectly ape the media centre interface (despite having minimal processing power within) meaning you can always find that bit of legit downloaded video on your hard drive. With the ability to control lighting and electric blinds, you'll only need to peel yourself off the sofa for basic nourishment.

# Virtual petting
## *Second Life* community convention dominated by naughty funsters

**V**irtual sex: the domain of jabbering beardies, or a common, accepted phenomenon that's going on right now? The latter, if the recent *Second Life* community convention in San Francisco this month was anything to go by.

As well as larger-scale community talks, a number of special-interest groups were run – including one on virtual nookie in *Second Life*. At the seminar, Kyle Machulis, a developer of 'teledildonic' devices and self-confessed *Second Life* lover, presented his open source in-game interface for remotely controlling love-toys, so that long-distance players can, well, play together.

Machulis also hopes that biometric data can eventually be incorporated into any on-screen action you get up to: "As your pulse quickens, or your temperature rises, we can relay that into the speed of the animation." Don't expect this technology to find its way into *MSN Messenger* any time soon…

*Second Life* **lover? These ladies are out to get you… virtually.**

# Rotten month for Apple

## Problems at the core of company

**The iPod peddler has** had a rough few weeks. For a start, the protracted legal battle with Creative over the folder structure on their wildly popular portable music player finally came to a head, with Apple settling for $100 million. Creative's patent, which establishes their ownership of a hierarchical file structure (much like patenting the idea of organising your book collection in boxes, we'd argue) for a music player, was awarded on 9th August 2001, well before the iPod gained momentum. Apparently the patent infringement applies to several other companies, but clearly the biggest fish was fried

first. Interestingly, Creative has become a Made For iPod partner and is planning a number of accessories in the next year. Luckily for Apple, if Creative manages to license the system to other players, there's a chance Jobs and co. may recoup some of the settlement.

The other kicker for Apple is the revelation that Dell laptops are not the only ones spitting flames. PowerBook notebooks, which use similar Sony batteries to those found in combustible Dells, have also been blighted by the problem and predictably Apple has also initiated a recall. Fortunately the problem doesn't affect the more recent line of MacBook Pros, so there's marginally less egg and face interaction, but it's still fairly embarrassing. Much like Dell, though, Apple is placing the blame squarely on the shoulders of Sony. If you have an iBook or PowerBook (don't worry we won't tell anyone your secret shame), trot on over to **support.apple.com/ batteryexchange** and double-check your thighs aren't in danger of melting.
**www.apple.com**

**This menu system has meant a world of trouble for Apple.**

# NEWS IN BRIEF

## Console crisis
"Next generation consoles like the Xbox 360 and the PlayStation 3 do not offer the sufficient power" to run *Crysis* properly, according to Bernd Diemer, senior game designer at Crytek. Hurrah for the PC!

## Chinabounder
This month played host to an enormous web hunt for a UK blogger boasting of his sexual exploits with Shanghai's female population. The Sex and Shanghai blog garnered 17,000 hits a day, many of which were threats from irate Chinese husbands and fathers determined to find 'Chinabounder'. Luckily for the lynch mob, who surely can't have been personally wronged, the whole thing has been revealed as a hoax – an experiment by performance artists into online vigilantism. The blog itself is now only viewable by invite.

## DRM double-whammy
August saw both Microsoft's Windows Media 10 & 11 files stripped of their DRM, and

Apple's QuickTime 6 rights management have its dark anti-copy protection heart ripped out. Go on, the little guy.

## Ultima Online again
The venerable 2D MMORPG, still hailed as one of the genre's best-ever, is to undergo a major revamp. It's remaining 2D, but with lush, high-res graphics and a promise of a more approachable play style. Consider our interest highly piqued. Whether this gives it any chance of poaching even a fraction of *World of Warcraft*'s titanic subscriber base is another matter...

**QUOTE!**

"Last year, another team from the university worked on a project to build a robot after researching how the human brain worked." The Beeb on Aberystwyth Uni's welly wanging machine.

# Hack Thursday

## Spammers have taken to playing the stock market…

**Here's a new one** on us. Spammers who appear to be somewhat more financially astute than your average 419 miscreant have a rapidly growing ploy for making off with your hard-earned notes. The tactics are hardly new to seasoned stockbrokers, but the utilisation of far reaching spam emails almost guarantees a margin of return. Here's how the scam works:

**STEP 1 – INVESTMENT**
Finding a company with low-priced shares, the spammers buy stock at that company's standard share price. The company is largely irrelevant and probably rubbish.

**STEP 2 – CAMPAIGNING**
The spammers then send out emails to thousands of people, offering 'stock tips' on shares for as low as a penny with the intention of 'pumping' the company's share price. As gullible people invest, the stock value rises.

**STEP 3 – ESCAPE**
After the pump comes the dump. Usually around a day after the campaign, the spammers sell up their newly boosted stock and leg it, obliterating the market value and leaving victims losing an average of $52 for every $1,000 invested.

Obviously this is something to keep an eye out for as, according to ClearSwift, financial spam now accounts for 26% of all junk mail. This makes it more prevalent than even its pornographic equivalent. Dabbling in shares is risky enough without stacking the odds against you by accepting unsolicited offers. Still, it's a refreshing change from the penis enlargement offers and healthcare schemes that currently foul up our junk email folders. As always, the best advice we can offer is to be vigilant – most unsolicited mail is utter guff, and so called financial tips are no different.
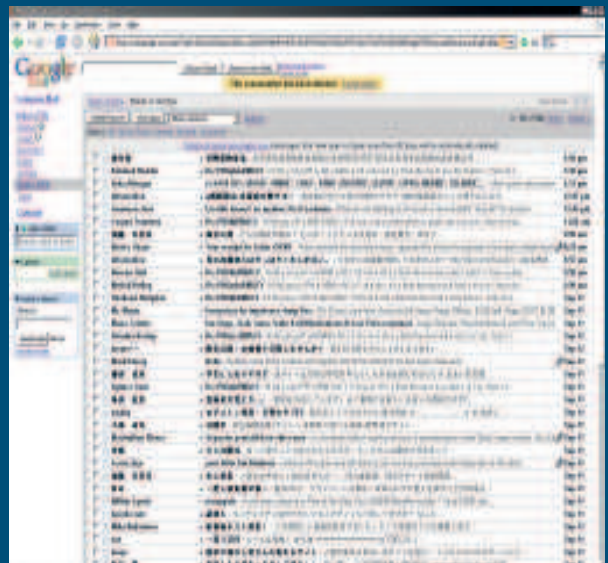
**Today's spammers are dabbling in the financial markets.**

## WHO IS...
### Chad Hurley
**CEO, YouTube**

**Ah, the man who made a million from Family Guy clips…**
That's the fella. YouTube's promise to keep copyrighted material off its servers has never quite rung true, though – probably because without clips of TV shows and movies it wouldn't be the success it is. 29 year-old Hurley is one of YouTube's three founders, and its most public face.

**A heartwarming rags to riches tale?**
More like moderate comfort to riches to even more riches, to riches beyond the wit of man. Fine Arts graduate Hurley previously worked at PayPal – he was the man behind its logo, in fact – and went on to launch Youtube whilst between jobs after PayPal's acquistion by eBay.

# Wikipocalypse

### In the face of increasing criticism, can Wikipedia be saved from its own users?

**D**emocracy's a tall order. Wikipedia's mission is to be entirely user-editable, so any and everyone can contribute to it. The trouble is, not everyone is reasonable, which leads to all sorts of problems – the page about a Milwaukee ferry service that kept turning nasty, for instance, or the continued attempts by unsavoury types to insert articles blaming Jews for 9/11, or the man who keeps adding references to *PCF*'s Mike Channell's sister to the the page about the village of Walton.

So what can be done? Wikipedia founder Jimmy Wales' solution is to call in the Germans. The German Wiki users have been tasked with implementing a moderation system, whereby someone who's been signed up to Wikipedia for long enough to be considered trustworthy has to independently approve your edits if they are to go onto the site itself.

In theory, it should deter someone who's hellbent on writing something offensive there and then, but there'll doubtless be a few groups of idiots who might, for example, plan for the day when one of them can edit "GEORGE BUSH IS GAY LOL" into an article on the site

### "Wiki's mission is to be entirely user-editable"

and then get one of his or her cohorts to approve it. Wikipedia's central tenets – accuracy and objectivity – may be more and more difficult to uphold as its profile grows and grows.

*Disgruntled users are compromising Wiki.*

## FACT!

According to research by Virgin Mobile in the US, one in five people would interrupt sex to answer a phone call. Well, it has to be better than not stopping and still taking the call.

# Dougie Howitzer, MD
## Number five is alive, and aced medical school

**There's been a breakthrough** in the treatment of wounded soldiers on the frontlines of tomorrow's wars, according to scientists at the University of Washington. They've created a remote control robot capable of being operated by surgeons remotely.

It's not the first remote-controlled robosurgeon, but all other attempts have been colossi taking up entire operating theatres. This machine, however, is small enough to be transported along with the troops in the back of an APC and deployed alongside them at the front line. It consists of two robotic arms and a wheeled carriage to allow it move around beneath the operating table and access different parts of the body. It probably wont be long until it's equipped with dual mounted rocket launchers too.

## Frog chorus
### Legitimate download site to rival iTunes

**Apple's domination of the** legitimate music download world could be in jeopardy after Universal Music signed a deal with SpiralFrog to distribute its back catalogue for free. It isn't just giving SpiralFrog access to its music either – it'll be offering all the videos too.

Universal and SpiralFrog are offering the service for free in exchange for the user agreeing to be subjected to adverts.

To take advantage of the site you have to register with SpiralFrog and then for each download you may have to watch a 90-second advert before being redirected. Both companies then split the profit made by the ad.

Microsoft will be rubbing its hands with glee at the news, as the downloads will be compatible with MP3 players supporting its DRM, but specifically not with the iPod.

At the moment the service is only available in the US, but is planned for a European launch some time around the beginning of 2007.

# Geared**up**

## THIS MONTH'S HOT HARDWARE

**Jeremy Laird**
CONFUSION REIGNS

## Just what, precisely, is AMD playing at?

What to make of AMD? It really has been a topsy turvy 2006 for the PC processor industry's perennial underdog. First Intel took great pleasure in wheeling out Core 2 Duo, and thereby rubbing out the smug smile which had been plastered across AMD's face since the launch of the Athlon 64 in 2003.

Next came the announcement that AMD intended to acquire ATI for a piffling $5.4 billion. And if that isn't enough for you, what about news that Dell will soon be bunging AMD chips into its Dimension desktops?

It's a baffling development. After all, Dell stuck by Intel as its hot and bothered Netburst family of Pentium processors baked and bombed out. Surely with the arrival of Core 2 Duo, Dell would reap the benefits of its loyalty to Intel? Perhaps. But there's a final twist to this tale. Sources have recently suggested that AMD's move to smaller, more efficient 65nm chips could be sooner than anyone thought. It's just possible that Dell could already be flogging 65nm AMD boxes by the time you read these words. If that happens, well, it'll be game on between Intel and AMD once again.

## Breadbox du jour

### Shuttle XPC SD37P2
**Price** £350   **Available** Now   **Web** www.shuttle.com

There's a familiar rhythm to the modern day CPU launch. First comes the technology preview, usually followed by the release of engineering samples, which in turn precedes the availability of retail chips and supporting motherboards. But it's not until Shuttle, the original breadbox barebones PC maker, weighs in with a supporting small form factor system that a processor really comes of age. So, this month is Core 2 Duo's official coming out party courtesy of the arrival of the fully Core 2 compliant XPC SD37P2.

Powered by Intel's 975X enthusiast chipset, it's the usual sleek and subtle Shuttle fare. It's also towards the larger end of the Shuttle size scale. And that's a good thing if high performance graphics is your bag. The SD37P2 sports a pair of PCI Express graphics slots and offers full support for ATI's CrossFire dual-GPU technology. Just remember that if you're doubling up on graphics grunt, only single slot boards will fit.

### Room for RAM
Thanks to fully four memory DIMM slots, this beastly breadbox supports up to 8GB of RAM.
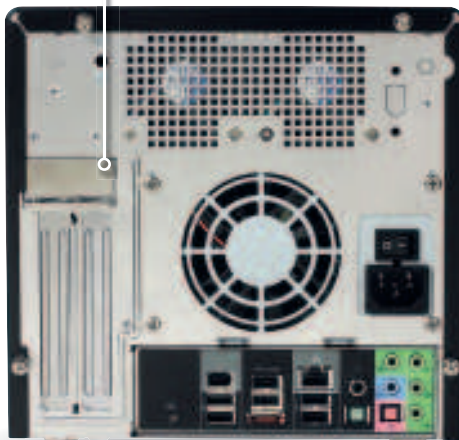
### Powerhouse
The XPC SD37P2 is Shuttle's first Core 2 Duo-compatible system, also supports the full range of LGA775 Pentium processors and comes complete with a 400W SilentX internal PSU.

### Tower toppler
With space for three hard drives and support for ATI's CrossFire dual-GPU tech (albeit in single slot format) the XPC SD37P2 has the measure of most ATX tower PCs.

## Commuter irritant

### Archos 404 video player
**Price** TBA   **Available** Now   **Web** www.archos.com

Not, in fact, a device that emulates Apache HTTP Server Errors when you type in the wrong URL, but a new 30GB personal media player from Archos. Displaying movies at a neat-and-crisp 720x480 resolution, the 404 supports MPEG-4, ASP3, WMV, H.264, MPEG-2, and VOB6. For another £70, you can also net the DVR Station which, when plugged into you home AV system, turns the 404 into a fully fledged PVR, so you can simply set it up to record EastEnders today, and drive your fellow commuters to contemplate suicide with it tomorrow. Shiny!
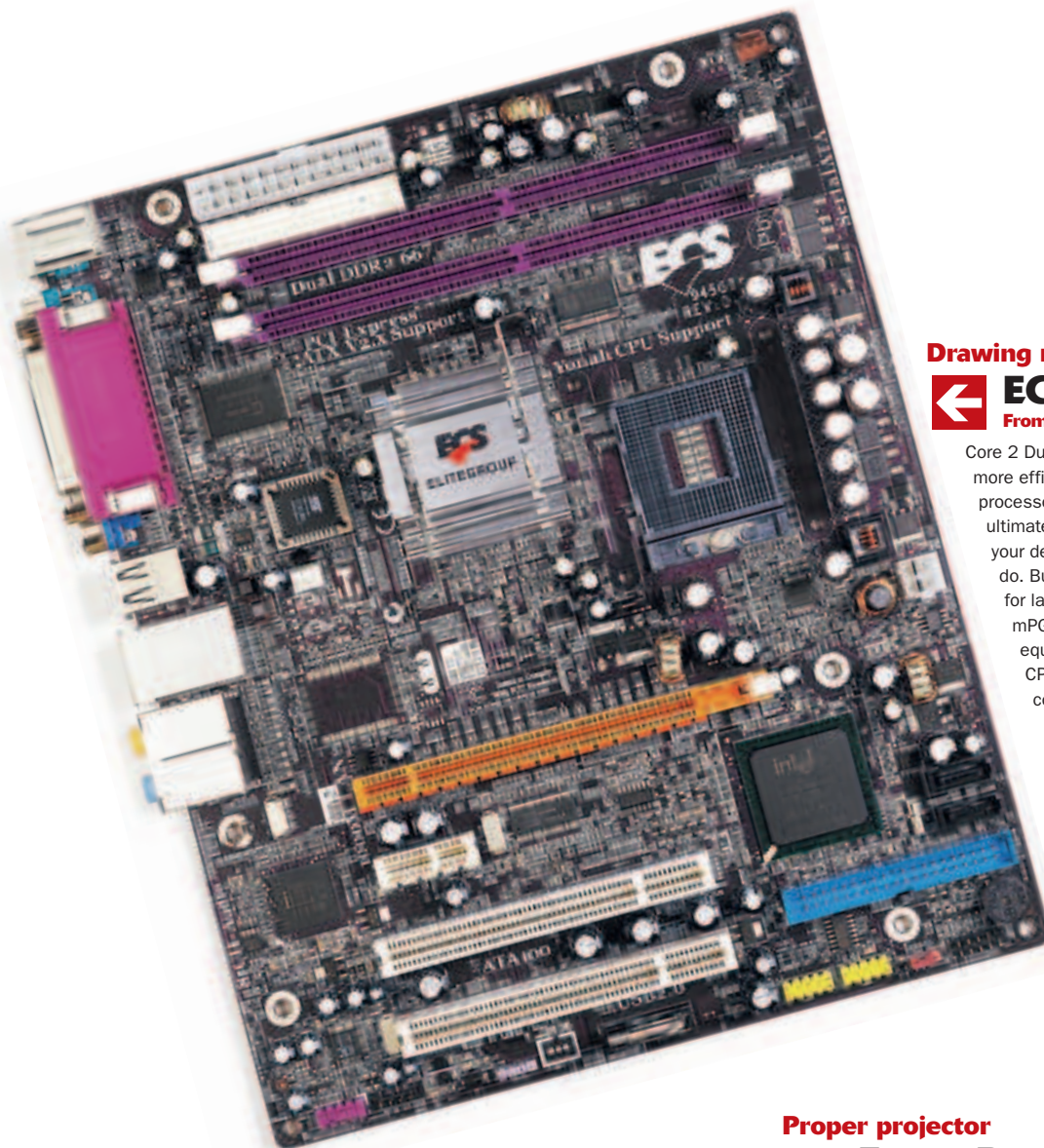
## Drawing room duo
### ECS 945GTY-M
**From** £52 **Available** Autumn **Web** www.ecs.com.tw

Core 2 Duo desktop chips run a damn sight cooler and more efficiently than Intel's soon-to-be defunct Pentium processors. That much we already know. But if it's the ultimate in high-efficiency, low-noise Intel power you want for your desktop, only the mobile version of the Core 2 Duo will do. But therein lies a problem. Because the Core 2 Duo for laptops sports a different socket interface, namely mPGA479. Fortunately, this new micro-ATX board is so equipped, allowing you to combine a Core 2 Duo mobile CPU with the latest PCI Express graphics solution in a compact and living room-friendly package.

## Proper projector
### Epson PowerLite Cinema 400
**From** £1,000 (approx) **Available** Autumn **Web** www.epson.com

With HD-DVD and Blu-ray drives and movies just about to burst onto the retail scene in massive numbers, it's time to get serious about your display. So, forget crazy money plasma screens and LCD panels the size of a small car. When it comes to bang for you cinematic buck, an HD-capable projector simply can't be beat. Epson's latest LCD-powered projector, for instance, packs a DLP-flattening 5,000:1 contrast ratio and a brightness rating of 1,500 lumens. Factor in the 1,280x720 native resolution and you have a display device capable of painting an HD image across the wall of your choosing. And it's a damn sight cheaper than any generously proportioned alternative tech.

## Watery wonder
### EVGA GeForce 7950 BlackPearl
**From** £600 **Available** Now **Web** www.evga.com

By cramming a pair of G71 graphics chips onto a single drop-in video card, NVIDIA's GeForce 7950GX2 is a bit of a low-down dirty trick. After all, how can poor old ATI X1950XTX compete with its single GPU? Well, it can't and the GX2 is the fastest single-card rendering solution in town. And this EVGA example could be the fastest of its kind. Courtesy of water cooling, the 7950 BlackPearl ramps the GX2's stock clockspeeds up to 600MHz core and 1.4GHz memory. The result, very likely, is monstrous 3D performance from a virtually silent solution. But at £600, it only makes sense in SFF system where dual-card rendering isn't an option.

## Redmond's new rodent

## Microsoft Habu

**Price** £60  **Available** Now  **Web** www.microsoft.com

"Research has shown that the vast majority of PC games require a keyboard or mouse." As opening gambits go, Microsoft's introduction to its first gaming mouse is certainly world class material in the blinding glimpse of the blatantly obvious stakes. But never mind, because this racy rodent has serious pedigree. Co-developed with the gaming mouse experts at Razer, the Habu "unites legendary Microsoft comfort with the latest in Razer precision." Or so says the flowery PR prose. For now, what we can say for sure is that the design is a pleasing amalgam of Razer and MS styling cues, while the impressive tech highlights include on-the-fly DPI twixt 400, 800, 1,600 and 2,000 DPI, programmable buttons and Teflon mouse glides. Intriguingly, the Habu isn't the only new pointing device release from Microsoft this month. The venerable Intellimouse Explorer 3.0 has been re-released (see below). Apparently the out-of-production Explorer 3.0 was so revered, users were transporting them in protective cases.

# Three alternatives…

## Logitech MX Revolution

**Price** £80  **Available** October
**Web** www.logitech.com

The showbiz feature here is a pair of low-friction alloy metal scrollwheels, complete with force feedback capability. Logitech raises the bar yet again.

## Microsoft Intellimouse Explorer 3.0

**Price** £30  **Available** Now
**Web** www.microsoft.com

First launched in 2002 and back by popular demand, we warmly welcome the return of the Explorer 3.0, complete with upgraded 9,000fps optical tech.

## Logitech MX-700

**Price** £40  **Available** Now
**Web** www.logitech.com

Like the MS Explorer 3.0 opposite, the MX-700 is an all-time classic. The first genuinely lag-free wireless mouse, and it's still a bona fide ergonomic masterpiece.

## ANALYSIS

# R600 AND G80 UNCOVERED: GRAPHICS ROADSHOW ROLLS ON

With Conroe's arrival and the announcement of the AMD-ATI deal, 2006 is already a vintage year for PC enthusiasts. But brace yourself for a twist – before the year is out the first high-end graphics chips built to support DX10 will be pumping pixels in silly money systems.

Of course, the biggest news in DX10 from an architectural perspective is unified shader technology. It's a subject we've touched upon frequently here at *PCF*, but in simple terms, under DX10 there are no longer discreet instruction sets for pixel and vertex shaders. The two are unified into a single standard, along with added support for a new shader type, the so-called geometry shader.

Which brings us neatly to the defining difference between ATI and NVIDIA's next flagship GPUs. In short, ATI's R600 chip will be the real deal, while G80 from NVIDIA will retain two discreet arrays of shaders, one for pixel processing, the other to handle vertex and geometry work. *PCF*'s spies have indicated that in many ways, R600 is a beefed up version of ATI's Xenos GPU as found in the Xbox 360. However, where Xenos has 48 shader units and eight render output units, R600 packs a total of 64 shader units and 16 render output units, along with 16 data units (or texture units in old money). As for G80, our info suggests NVIDIA is going with a 32 pixel shader design, complete with 32 texture units, 16 render output units and the aforementioned vertex and geometry array, probably comprised of 16 shader units.

But which will be quicker? Well, if you were to place a bet on G80 taking the spoils for DX9-class rendering and R600 showing its true capability in a DX10 environment, we reckon you'd be onto a winner.

Which leaves the question of when these chips will arrive. Expect NVIDIA to release G80 by the end of October, with R600 appearing a month or two later.

*Crysis* **is the next game from the developer of** *Far Cry*.

# Gameslatest

## NEWS, RUMOURS AND GAMING GOSSIP

BAFTA has cottoned on to the fact that games are popular.
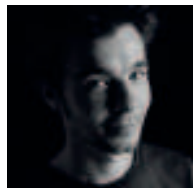
**James Carey**
CREATIVELY ASSEMBLED

### Games are developing so fast, it's scary…

Phew – this month's been a real eye-opener, in an end-of-2001-A-Space-Odyssey kind of way. In the space of a week, I was exposed to all the mechanisms and hierarchical variety that games have to offer, from the lowliest teenage LAN gamer and the pizza delivery services that prey on them right up the MPs in charge and the academic aristocracy at the top. All the programmers, organisers, developers, publishers, PR and money men in between too, as I travelled from LAN event to dev studio to BAFTA to boardroom. This condensed view of the industry has given me a new perspective.

Today, there are more routes into gaming, and more enclaves within the gaming world, than it's possible for one man (or me at least) to fathom. In the space of 10 years since the arrival of Playstations in the front room and Quake on the net our hobby has just exploded into a myriad of intricate and fractured groups.

Perhaps I'm stating the obvious, but something about seeing so many levels of it in such a short time really lodged in my tiny brain. I've just speed-demoed the world of games and I'm still a bit spaced…

# Panel games

## Videogames are officially art, says the British Academy. Depends what you call art…

The 2006 British Academy Video Games Awards took place this month, just one of many elements that made up the London Games Festival.

Since their inclusion in the Academy in 1998, the Video Games Awards have grown into 'one of the three arms of the Academy', as BAFTA Chairwoman Hilary Bevan Jones put it to *PCFormat* and sundry games industry professionals at the pre-awards media event. Speakers ranged from the sublime Will Wright to the ridiculous Shaun Woodward MP, who suggested that games were good because they improved his kids' dexterity.

The BAFTAs are supposed to reflect the cultural acceptance of games as an art form, but there was little evidence of that understanding.

We were shown a montage which could have been called *Why Games Are Good Enough to be Art*, which showed how visually similar games can be to real life or films. A real football match was shown, then a clip from EA's FIFA. Next, some movie clips followed by corresponding licensed games. Then came a tech demo from Sony. A convincing synthespian walks into an 'audition' then plays out a dramatic, emotional scene to win a 'part' in a game. This, we're asked to believe, is why games could be art. It's not the ingenuity of good design, the potential for gamer creativity and the engagement of the audience as opposed the passivity of other media. Empathy and artistic expression are achieved through naturalism.

Then Will Wright took the stage, presumably to stop it being stormed, and gave a characteristically erudite speech about why games *are* art. Using the revolution in painting as an allegory to gaming, he demonstrated the exact opposite of what the other speakers had said. How games let *the player* become the artist. "Perhaps then we can move beyond games like this," said Wright, as a slide showing a mock cover of a fictional fantasy game called *Death Sword* flashed up, "…and start using them to change the way people think." The roars of applause were still ringing when BAFTA Chair Bevan Jones retook the stage, clearly encouraged by his demonstration. She thanked him, gushingly, as if to say 'exactly Will! That's why we're letting you lot in!" Then they showed some more movies, one of which was for a fantasy game called *Heavenly Sword*. The irony seemed lost to most.

A full recording of Will Wright's inspirational speech, which has had us in a tizz all issue can be found at **blog.pcformat. co.uk.**

## GOSSIP!

"It will be like a pay-per-view Tyson fight, but you turn on a single image in the bottom right-hand corner and you get to watch it for free." David Perry on Acclaim's free MMO, 2Moons.

# No war for oil?

Put those damned placards down and embrace *Frontlines: Fuel of War*

**DUE DATE** 2007 **PUBLISHER** Eidos **DEVELOPER** IO Interactive **WEB** www.eidos.co.uk

**F**orget those pesky real-world sensibilities and embrace Third World combat for limited fossil fuels in *Frontlines*. Brought to you by former members of Trauma Studios (the team behind the hugely popular *BF1942* mod *Desert Combat*) now going under the name Kaos, *Fuel of War* has come a long way since we first saw it running at E3.

The destructible scenery and objective-based maps caught our attention then, but the visuals were lacking some of the shine we'd come to consider standard for a show that had us gawping at *Crysis*, *BIA* et al. New shots have shown however that graphically things are finally matching up to the game mechanics.

Interestingly, these new shots are making much more of the vehicle combat than was on show at E3. It's widely considered that *BF2* has become, for better or worse, a more infantry based game than *1942* or *DC* was, so this could be construed as a deliberate move by the former modders to recapture some of the feel of those large-scale tank and chopper battles that made *Desert Combat* such a hit on the servers. We'll have much more on how *Fuel of War*'s shaping up in an upcoming feature very soon.

# in the pipeline

We've seen the future; it's pipe- shaped, and full of games…

## NOVEMBER

### Bionicle Heroes
More brick-based action from the team behind *LEGO Star Wars*, as the Bionicles get the digital treatment. Big, heavily armed robots and LEGO, surely a winning combination whichever way you look at it? **www.bionicleheroes.com**

## AUTUMN

### Championship Manager 2007
Beautiful Games Studios is sure that it's going to be third time lucky with its latest iteration of the free-falling *Champ Man* series. Going up against the daddy, both literally and figuratively, in *FM2007*, it's going to be tough. **www.eidos.co.uk**

### Sims 2: Pets
Put the cat amongst the pigeons with the latest facet of our lives that's been co-opted into the world of *The Sims*. Your pets can even get themselves careers too, although we're not sure if cock-fighting's one of them. **www.thesimes.com**

# Beta eater

## Violence a go-go in the world of the MMO

David Perry's sales pitch for 2Moons, an MMO galloping out of the studios of a recently rejuvenated Acclaim, could have been 'this is strictly not for kids.' "I'm doing my best to make this a violent game," says Perry in an interview with www.mmorpg.com. He goes on to say that it's "going to probably be the most violent MMO on the market."

Well, now that's got your attention you'll be pleased to know that we've had a quiet word with the bods at Acclaim and wouldn't you know it, we've secured you proud bunch of Eaters fifty keys for the upcoming beta test of this kill-fest. It's designed so that you don't have to get waist deep in the back story, but simply concentrate on your own character and their quest for survival. The fighting is all based on an arcade style and will see you going head-to-head and hand-to-hand with some seriously nasty creatures. What larks…

If this has given you a taste for the ol' ultra-violence, then all you need to do to get on this test is check your birth certificate and make sure you're over 18 years of age, answer this simple question and send the answer to **betaeater@futurenet.co.uk**.

**Which of these titles did David Perry work on?**
a) *Jim Jim the dog-faced boy* b) *Earthworm Jim*
c) *Jim Dangerous*

**An outtake from *Earthworm Jim*? It seems unlikely.**

# Biggles is back

## World exclusive interview with the Next Big Thing in combat flight sims

**DUE DATE** TBA **PUBLISHER** TBA **DEVELOPER** Gennadich

**A cutting edge WW1** flight sim is in production, and being the flying aces we are, we caught up with *Knights of the Sky* Lead Developer Albert Zhiltsov for a verbal dogfight.

**PCFormat: What makes Knights of the Sky a unique flight sim?**
Albert Zhiltzov: Military aviation was first used during WW1. We hope to make the game not just an advanced technical simulation of the physical properties of aeroplanes, but also an educational tool. Our goal is to let the player get into the dogfights and say, "I was there!"

**PCF: Did you work from Oleg Maddox's IL-2 engine?**
AZ: We wanted to use *IL-2* to reduce development time and focus on gameplay, but we came to the conclusion that the engine was limited and difficult to add new features. Our new engine has surpassed expectations and we believe that it has potential to become the standard for future flight sim development.

**PCF: What can we expect from the in-game AI?**
AZ: We will even try to 'teach' the computer to use radical strategies. We're adding things that could be attributed to emotions, like revenge, so it would be even harder to distinguish between human and computer pilots.

Check the *PCF* blog (**blog.pcformat.co.uk**) for a much more in-depth chat with developer Gennadich.

### "We wanted to use IL-2 to reduce development time and focus on the new title's gameplay"

**ALBERT ZHILTSOV** Lead Developer, Gennadich

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## Sonic Riders
Shameless, money-grabbing port alert! SEGA has just announced that the game it released last March on the old consoles is getting a PC release just in time for Christmas. *Wipeout* with forest fauna on hoverboards? Can't wait… **www.sega-europe.com**

## WINTER

### Spellforce 2: Dragon Storm
We love dragons – who doesn't? And as the holiday season approaches with nary a thought for our wallets, here comes another money hungry expansion. Still, the chance to battle the winged beasties is reason enough. **www.spellforce.com**

## PT Boats: Knights of the Sea
Thanks to help from NVIDIA, this WW2 naval action-combat sim boasts excellent water effects. Akella has some experience from its *Age of Pirates* days, and the way the boats push through the water is quite something. **www.pt-boats.net**

# Lady Vengeance

## It wasn't all Vera Lynn and powdered egg…

**DUE DATE** Spring 2007 **PUBLISHER** dtp **DEVELOPER** Replay Studios **WEB** www.dtp-ag.com

**T**he first thing that hits you about World War 2 sneakathon *Sabotage* is the visuals. The sepia tones, high contrast levels and grainy mustard tinge give it the feel of an old war film you'd stumble across on a Sunday afternoon on BBC2. It's not surprising though, given that Sascha Jungnickel, the Project Leader on *Sabotage*, was responsible for much of the look of the latest *Hitman* game.

It has the same feeling too – that slightly surreal air to your surrounds and the bloody minded pursuit of violence by the main character. Set in war-torn Europe, the game follows Violette Summers, an MI6 agent based loosely on Violette Szabo, a real-life French Resistance fighter and the first woman to be awarded the George Cross.

The game is narrated in retrospect by Violette from her hospital bed, and the missions gradually illuminate exactly how she came to be there. The dreamy essence of the visuals helps this enormously, especially when certain particularly dramatic sequences lead to rather trippy interactive flashbacks mid-mission.

Replay has gone for the juxtaposition of beauty and violence here – not just in its heroine, but also in the level design. One in particular finds you engaged in a firefight in a tulip field, where bullets and petals fly with equal abandon. Style and content? We certainly hope so.

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### The Tomorrow War
You simply cannot mess with any space game whose engine allows you to fly from the depths of space, through a planet's atmosphere and lark around above its troughs and peaks. Yummy. **int.games.1c.ru/the_tomorrow_war**

**WINTER**

### Two Worlds
This RPG has been given a delayed release to invest extra development time into it. Hopefully it's not irrevocably broken, though, as it'd be a shame to miss out on the soundtrack penned by Mr *Top Gun* and *Beverly Hills Cop*, Harold Faltermeyer. **www.2-worlds.com**
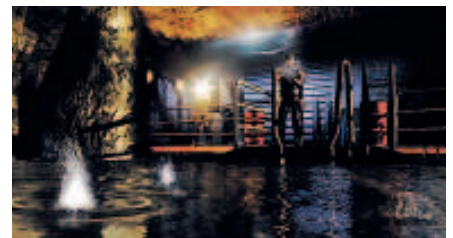
### Red Ocean
Remember those really boring quiet bits in Bond films? Yeah, the underwater fight scenes. Well, forget all about those, because Jack Hard, treasure hunter and diving instructor, is here to show that acquatic combat can now be fun. **www.dtp-ag.com**

**FEBRUARY 2007**

## Dive, dive, dive!
### Silently plumbing the obsidian depths

**DUE DATE** Spring 2007  **PUBLISHER** Ubisoft
**DEVELOPER** In House  **WEB** www.ubisoft.com

**S**ilent Hunter III was a bit of surprise hit, earning a fair chunk of mainstream support for what is, after all, a fairly niche theme. Still, there's no denying the appeal of the North Atlantic cat and mouse game, especially in the multiplayer arena. *Silent Hunter 4* has now surfaced and is due to arrive in UK waters next spring.

Capitalising on the popularity of the online game *SH4* (or *Wolves of the Pacific*, to give it its full name) is improving and expanding its multiplayer to include a new type of adversarial mode. Players will be able to play scripted, preset missions or randomly generated scenarios online (both cooperatively and via PvP) which means tactics will have to applied to new situations as they arise, rather than learning the 'trick' to winning each map.

But far from ignoring the singleplayer game, the next instalment of the submarine sim will also include some RPG elements for your crew. Your officers will become better at their jobs depending on your success, and special rewards are promised for impressive performaces 'neath the waves. Or should that be beneath it? While a graphical hike may not be of interest to elite submariners, the promised visual improvements are sure to draw oohs and ahhs from the mainstream crowd this franchise has started to attract.

**The sequel to *Silent Hunter III* promises the ultimate in silent, deadly deep-sea combat.**

## Bad medicine?
### Codies' latest taken on the of its ever-popular hospital sim is likely to have a long waiting list

**DUE DATE** Spring 2007
**PUBLISHER** Codemasters
**DEVELOPER** Deep Red
**WEB** www.codemasters.com/hospitaltycoon

**T**heme Hospital is still shifting a lot of copies. It remains in the top 30 of most etailers' bestseller lists, beating *Oblivion* and *FM 2006*.

It's something of a miracle that we've never seen *Theme Hospital 2* from sequel-happy EA but it finally looks like another publisher has caught on.

Expect *Scrubs* rather than *ER* from *Hospital Tycoon* though. Diseases like Stress Zombosis and Monkey Nuts on the operating table, it's clear that Deep Red is sticking to the comedic formula of the game's clear 'inspiration'.

"We've added a generous helping of humour and a kind of soap opera format to the game, too," says Project Lead Steve Beverly of Deep Red Games. If his team gets that humour right, we're in for an updated trip around the wards, but we fear it'll be all too easy for this homage to Bullfrog's classic to become a casualty.

## History repeating
### Diplomacy, intrigue, skullduggery and colonisation abound in *Anno 1701*

**DUE DATE** 26th October  **PUBLISHER** Deep Silver  **DEVELOPER** Sunflowers  **WEB** www.anno1701.com

**A**ll we know about the year 1701 is from *PCF*'s GCSE history classes on the agricultural revolution. Thankfully Jethro Tull's seed drill and his anecdotes on animal husbandry aren't what this empire builder's all about. The 17th and 18th centuries were all about discovery and exploration and this third iteration of the *Anno* series sees you sailing the seven seas, discovering new lands and new civilisation and boldly going...well, you get the picture.

As well as continuous play, there are 10 missions, with 100 quests introduced as you play. Sunflower's spent a lot of time talking with the players, and this promises to be the most expensive game ever... to come out of a German-speaking country.

### Virtua Tennis 3
SEGA has just announced that the next instalment of this tennis franchise will be coming to PC as well as the next-gen platforms. Thrice huzzah, then, that we too will get to watch the fantastic cloth effects on Sharapova's skirt. **www.sega-europe.com**

### 2007

### Penumbra Overture
We checked out the free version of this indie title last issue and were mighty impressed. Now Swedish dev, Frictional Games, is gearing up for a commercial release of this scary-mary, first-person horrorthon. **www.frictionalgames.com**

### The Divine
Forget about all the slow-paced, space-based RTS games around and remind yourself of the days of the *Wing Commander* dogfights. Concentrating on a decent storyline and fast action, this could be a divine little gem. **www.thedivinegame.com**

**SPRING 2007**

**2007**
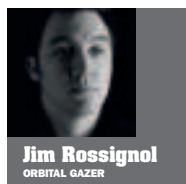
**Jim Rossignol**
ORBITAL GAZER

# Watchthisspace

## THE FUTURE IS HERE. JIM ROSSIGNOL IS SEEING STARS

# Your own satellite

The solar panels can be configured to power personalised equipment.

## You too can get into the heavens

**We should warn you** that you'll need a few quid in the bank to start an orbital satellite collection. The MySat-1 is one of the most obtainable – a solar-powered mini-satellite costing around £400,000. Japan-based Astro Research Corporation has unveiled the 10-inch cube as a cheap and fast solution for limited satellite tech on demand. Astro Research claims that a personalised MySat-1 can be launched within 18 months of the order being placed, and the little box can be configured for

component testing, Earth observation or any number of projects. For small companies and academic interests trying to develop orbital systems it could be an ideal solution.

The MyBox space container can be used to launch any small payload, however, so those folks wishing to have their ashes fired into space are catered for. Astro Research intends to launch a demonstration satellite called ARCSat-X to show off its technologies in late 2007, but the MySat-1 (pictured) could well be in orbit by next summer, if

those orders come rolling in.

Astro Research is the only commercial firm putting personalised objects in orbit, but there are also multiple University teams working to develop small research satellites on even smaller budgets, as well as a number of commercial companies developing similar concepts. It's going to get crowded up there… **astro-r.co.jp**

# Inflatable space hotel

**American commercial space pioneer** Bigelowe Aerospace wants you to be excited about space travel. With that in mind its aiming to make space tourism a reality – with an inflatable space hotel. The solar-powered room will self-inflate once launched from Bigelowe's rocket, Nautilus, and cost residents a mere $1m dollars a night to stay. Meanwhile Bigelowe is co-ordinating a $50m competition to entice spacecraft-inventors to come up with craft for transporting people to their holiday among the stars.
**www.bigelowe aerospace.com**

### This month in
## Science
### October, 1922

The British Broadcasting Company was formed. Its first office was in the GEC building in London, but the project was dissolved, nationalised and relaunched under the same name. Hurrah for socialism.

# Robotic limbs

## Androids find new ways to get from A to B

**Robotics researchers have the** most fun of all the cutting-edge scientists at work today. We've recently seen their ideas about how robots should interact with the world develop in some extraordinary directions.

The Ballbot (pictured) from Carnegie Mellon University, for example, demonstrates that a human-sized robot needn't be bipedal. "We wanted to create a robot that can manoeuvre easily and is tall enough to look you in the eye," said project leader Professor Ralph Hollis. "Because it is omnidirectional, Ballbot can move around without having to turn first." The Ballbot works like a ball-driven mouse, only the rollers connected to the ball at its base are small motors.

Other robotic developments this month include a prehensile tentacle designed for military use. Researchers at a number of US universities came up with a design based on real-life octopi. **www.roboticstrends.com**

pic © Michael Goldfein



It can follow you, and look you in the eye. *Great*.

**The AV Club**
www.avclub.com/content/cinema
Without question the best, most intelligent, and thankfully, shortest movie reviews on the internet. Rather than waffling for eight pages telling the entire story, the Onion's reviews are three paragraphs long, very well written, and precise critiques.

**Roger Ebert**
rogerebert.suntimes.com
Roger Ebert may be a complete twit when it comes to videogames, but he knows his movies. Skip the middle sections if you don't want to know the entire plot, but top and tail for interesting reviewing.

**Metacritic**
www.metacritic.com/film
While not featuring any reviews of its own, Metacritic brings together every review in the entire universe (including PCF's games ones) and works out a weighted average.

**CAP Alert**
www.capalert.com
Not the best, but the funniest. The works of a raving, raging right-wing Christian in the States, CAP Alert intends to warn parents of the evil content of every film ever released. Apart from Mary Poppins, which is fine despite featuring a witch.

# Thewebpages

## THE LATEST ONLINE NEWS



Google's search functions could be added to MySpace.

## Google power
### Google is taking over the world, one search at a time

The big G's been busy. After selling its share of Chinese search rival, Baidu, for a tidy profit, Google's investments have gone elsewhere. A $900m News Corp deal rests on agreed web traffic targets being met, and means Google will be providing search engine support (and thus the company's profit source, Google Ads) to all of Murdoch's online ventures, except Fox Sports, already being filtered by MSN.

Of course, the most significant web presence of News Corp is currently the extraordinarily huge MySpace. Beating off bids from MSN and Yahoo!, Google will now provide MySpace users with the ability to search for friends on the site. And with a reported phenomenal 250,000 people joining every day – fast approaching 100 million total users – that's an awful lot of Google Ads.

Slightly more philanthropic is the addition of pop-up warnings on Google searches that link to sites believed to host malware, spyware and so on. This

---
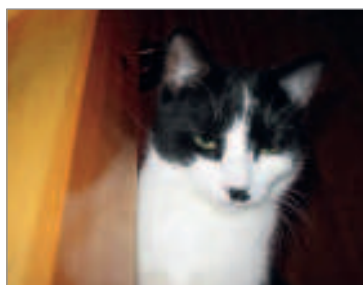


## Katzenführer
### CATS THAT LOOK LIKE HITLER
"Do you wake up in a cold sweat every night wondering if your cat's going to up and invade Poland?" It's a question on everyone's mind. And proof of its validity can be found at Cats That Look Like Hitler. It might, at first, appear a strange claim that there would be even one cat that looks like Hitler, let alone enough to fill a frequently updated website. Think again.

Pictured above is Mustikka, who sports not only the required little moustache, but also the menacing glare of evil. As you might imagine, there's the option to vote the beasts on their Hitleriness out of ten, and room for your comments. There are 267 Kitlers at the time of writing, with more pouring in. Yes, it's in incredibly bad taste. Uh, sorry about that.
**www.catsthatlooklikehitler.com**



## Q&A
### IS IT NORMAL?
You know how when you're nailing a puppy to a wall you can sometimes get that twinge in your shoulder that reminds you of the first time your mother burned down your school? What? Oh come on, surely? Really?

Thank goodness for the invaluable service provided by Is It Normal?, letting you ask such potentially disastrous questions in an anonymous fashion, and have the site's readers report back.

Based on the Hot Or Not format, you can reply with Yes, No, or Skip buttons. There's also a place to put comments for those wishing to provide a more elucidating response. Perhaps you'd like to help the person who asks, "i have resently discovered i have spots on my bum. i wanna sleep with my gf but i dunno how she will react if she sees them."
**isitnormal.com**



## Potty training
### MOTHERS AGAINST PEEING STANDING UP
Look, it's not easy being a guy, OK? Everyone assumes that having a willy makes weeing super-easy, but it doesn't. It's… it's not entirely under our control. But that doesn't make us bad people, and it shouldn't be a reason for scary mums to band together and campaign against us.

MAPSU is a rather terrifying attack on those that might dare to aim their drain from a standing position. Campaigning with the intent of having all men face up to the fact that they can't pee straight, these angry mothers want boys to sit down when relieving themselves. With a goal to change masculine habits completely by 2010, they appeal for new activists to join their cause. We suggest an ideal middle ground: pee in the sink.
**www.mapsu.org**

move by Google is part of a more widespread movement across the web, attempting to fight back against the sods who fill our machines with their uninvited code. Called the Stop Badware Coalition (**www.stopbadware. org**), the group describes itself as a Neighbourhood Watch for the internet.

Google Checkout, meanwhile, shows Google baring some teeth and flexing its muscles. For a while, eBay's but PayPal has utterly dominated internet transaction systems, now Google has decided this should come to an end. Currently only available in America, the system is sure to spread worldwide. Cunningly concealing the Checkout icon in sponsored search results on Google, you'll know which sites accept the new scheme while searching for items you want to buy. And it's designed to encourage more advertising for the site – those running Checkout will get discounts on order

processing costs in return for paying for advertising.

Even Microsoft isn't safe, with the big G taking it on in a war of office applications. Google plans to offer its services, such as email and calendar apps, to paying companies. The smart bet is that eventually the newly purchased *Writely* (**www.writely.com**) and *Google Spreadsheets* will be added, offering collaboration options not currently evident in *Microsoft Office*. Coming soon: *Google Oxygen*.

> ## "Even Microsoft isn't safe, with the big G taking it on in a war of office apps"

## Forum
### Last Plane To Jakarta
The consistently amusing blog of one of PCFormat's favourite musicians, Mountain Goats' multitalented singer John Darnielle.

**lastplanetojakarta.com**

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## Propaganda
### PERVERSION FOR PROFIT
Thanks to the Prelinger Archive (**www. prelinger.com**), this remarkable piece of propaganda from 1965 is available to view on the web. The anti-porn film was financed by banker Charles Keating (later embroiled in 1989's Savings and Loan scandal), and presented by then American news presenter, George Putnam (still alive at 92, presenting a right-wing talk show on American radio).

It's an astonishing tirade, raging furiously against the evils of pornography, and its wanton destruction of society as we know it. Quote: "This same type of rot and decay caused 16 of the 19 major civilizations to vanish from the earth."

The film, perversely, provides a useful record of underground porn in the 60s, and an unsettling glimpse at the depth of widespread homophobia at the time.
**www.jonhs.net/freemovies**

## Demotivate!
### MOTIVATOR
Is there anything worse than walking into an office to see those wretched so-called motivational posters hanging on the walls? False sentiment writ large, cloying lies causing all to feel guilt at their lack of internal contentment. Well, now it's time for revenge.

Certainly the hugely entertaining Demotivation posters have been around for a while, but with the Motivator, and a digital photograph, you can now make your own. It's beautifully designed, incredibly simple to use, and absolutely free.

The work of John Watson, it's one of many Flikr toys he's created, including a few fun tweaks for the site, or other ways of manipulating photographs, including turning them into billboards, movie posters, or the self-explanatory "Hockneyizer."
**flagrantdisregard.com/flickr**

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## Copyright watch

**John Walker**
RED DEVIL

### John Walker sighs as even Linus Torvalds jumps from the anti-DRM ship

**A**s much as I want to, there comes a certain point where I have to stop writing about the RIAA's hateful campaign of threatening innocent people with impossibly large lawsuits with no proof of any crime. But let me just mention their latest remarkable feat – suing a man who *doesn't own a computer*. (Perhaps not quite as bad as last year's attempt to sue a dead woman.)

It's also worth noting one of the more remarkable claims of copyright, made by the Royal Mail on their webpage for the new *SmartStamp*. "Royal Mail, the Royal Mail Cruciform, the colour red and *SmartStamp* are all registered trademarks of Royal Mail Group plc." I hope to goodness none of our readers are using the colour red any more. Wait – what colour is this column again? Oh no! I'm in so much trouble!

But the focus this month is on the rather sad news that Linux kernel creator, Linus Torvalds, is descending ever further into the vile mire of DRM. The man some say is wrongly credited with the creation of free software

operating system *GNU/Linux* (the majority of the work was done by Richard Stallman, with Torvalds' kernel making up a very small part) is stamping his feet about the latest draft of the GNU General Public License (GPL version 3), and its enforcement of the GPL's core values. Namely, those preventing Digital Rights Management (DRM) from blocking access to a Linux-using product's source code.

As those behind the GPL stand firm on their base principles, Torvalds sees it as, "no longer a nice balance that a lot of people can accept". For "a lot of people", read: "big businesses."

Of course, the GPL hasn't changed – he has. Denouncing Stallman's GPL as having a "political agenda", as if this is somehow a terrible thing, reveals the increasing rift between those who truly believe in anti-copyright free software, and those who wish to compromise themselves to a DRM-soaked corporate death.

Note – the opinions expressed in Copyright Watch do not necessarily reflect those of *PCFormat*.

**Tux, the Linux penguin, is being pulled in two directions, poor chap.**

# PCFMail

## DISCUSS HOT TOPICS AT forum.pcformat.co.uk

### Gigamegabite

I entered your competition to win an upgrade pack, and was looking at the answers to the question: (**www. pcformat.co.uk/staticinc/191gigabyte compo.html**).

Your question asks 'How many bytes are there in a gig?' According to Google there are 1,073,741,824 which doesn't seem to be one of your answers? I'm as thick as George Bush's Atlas collection – so I admit I cheated and tried to look it up. Is Google lying to me?

You can see the answer Google gives for yourself by typing in 'how many bytes in a gigabyte'.
**IAN**
**ian@froopter.com**

**PCF says** Next month's compo will be 'how many geeks can approve a magazine page and still miss the bleeding obvious?' Google outsmarts PCF. Again. Curses.

### DVD disgust

Anyone know where you can purchase 12x DVD-RAM media that's compatible

**Contains about 64,424,509,440 bytes, since you ask.**

with shiny new DVD writers? It looks like Maxell is the only company to sell them…. and Maxell only distributes in Japan. Boooo.

I feel insulted and frustrated by this state of affairs.
**RICHARD WHATLEY**
**genesis@paperlate.fsnet.co.uk**

**PCF says** Incredibly, despite the fact that drives are in abundance, discs for the often overlooked hi-speed DVD-RAM format have been – well – overlooked. Any suppliers in the UK, please get in touch.

### Front side bus

As a very enthusiastic reader of all things IT I very much enjoy subscribing to your magazine, even if I rarely open my wallet to upgrade my 1999 PC. However, after some nagging from various friends, I decided to upgrade my old slot-loading CD player to a slot-loading DVD player or rewriter. Unfortunately it seems internal 5.25 slot loading DVD player/writers have quietly become extinct.

Now, I know the BBC may not drag Mr Attenborough out to do a piece on the seeming demise of this now long lost animal but Id be grateful if you could point me in the right direction if there is still a chance of equipping my old 900MHz PC with a bit of plastic surgery.

Hope you can help as I really do think that slot loading is just so much more civilised than a plastic tray popping in and out of my PC.
**JOHN MAINWARING**
**John.main waring2@virgin.net**

**PCF says** For those set-top style media centres, slim drives are definitely the way forward. But don't panic Mr Mainwaring, we've
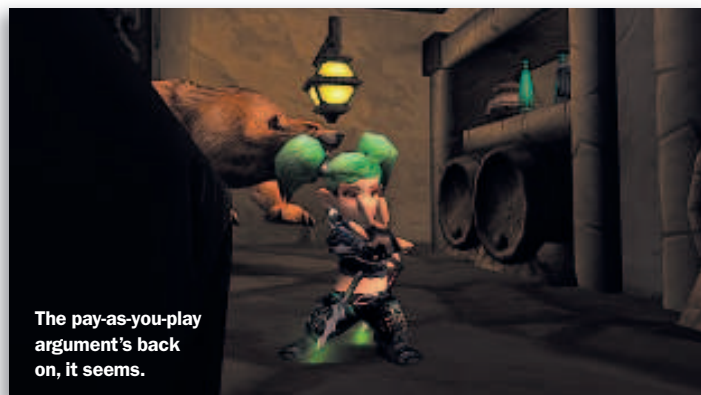
**The pay-as-you-play argument's back on, it seems.**

managed to locate a 5 1/4 inch front-loader for you at www.stuff-uk.net. It's a little pricey, mind.

### World of Freecraft

I don't know if this subject has been bought up before in your magazine, but me and my brother agree that online fees for playing games, such as *World of Warcraft* is unacceptable. It doesn't bother me too much because I mainly play shooters and driving games, which as we all know you don't have to pay for online. My brother feels that he should not be punished for playing his favourite genre (which is fantasy role playing) and I agree with him. We both think that if you have to pay £10 a month (or whatever it is) for playing a game online, then the game itself should be given away free. I would like to know other gamers views on this subject.
**CARL HANDLEY**
**carlhandley0@supanet.com**

**PCF says** While we're all for free stuff, being a games master or sys admin for WoW and its ilk is a thankless enough task already. However, titles such as Guild Wars

are blazing a trail of sub-free online games.

### Don't shoot the sub

I am a subscriber to the magazine, and very much look forward to each new edition. However, when re-reading old copies recently I noticed that in the past few months the same mistake has been made three times: the phrase "the hoi polloi" has been used. A translation of "hoi polloi" would be "the many" – in other words, "hoi" is the definite article (the), and therefore it is incorrect to precede "hoi polloi" with "the".
**ANDREW WELLS**
**sdotu.wella@btconnect.com**

**PCF says** A debate that has been raging amongst linguists for at least 200 years. Check out Wikipedia to see why we're safe in our articalisation (although we did just make up a word. Bad PCF).

## Mail of the month

In *PCF192*, page 15, you mention that 'Eilean Siar' is the town with the smallest percentage broadband takeup in the UK. Eilean Siar is Gaelic for the Western Isles, it's not a town. It's not surprising that the take-up is so low there, though, due to the remoteness of the Western Isles. Anyway, I'll get back to enjoying an otherwise excellent issue.
**STEVEN HARKER**
**steven_harker@talk21.com**

**PCF says** It's a fair cop. We'd try and blame poorly maintained databases that record regions as towns, but it'll get us nowhere. Instead, we shall reward your keen eye with a USB memory key, and beat our news writers upside the head with an English-Gaelic dictionary.

**OVER TO YOU**
Find out what kit PCF readers have scored gratis over on p146

# Land
## *of the*
# free

**There's no such thing** as a free lunch – this is known. There is, however, such a thing as a free snack, and even though Mother says that eating too many crisps will spoil dinner, enough snacks do eventually make a meal of sorts.

Here, then, is *PCFormat*'s gratis lunch – the best priceless (in a very literal sense) applications, games, entertainment and hardware (or at least tweak-enabled hardware

heart and not hugely inclined towards gaming, you can even shed your Microsoft shackles entirely and move to Linux – it's no longer the terrifying mélange of command lines and sarcastic fat men with beards it used to be, and is now, for the most part, incredibly intuitive to use once you're past the still slightly hairy install process.

Then there's games, and we don't just mean innovative but rustic indie fare. With the PC being, as it

## "Here is *PCF*'s gratis lunch – the best priceless applications, games, entertainment and hardware"

performance) for your PC. There genuinely isn't any need to be running a load of expensive retail applications these days – especially in this age of software activation and licence keys, in which you're expected to cough up for two versions of an app if you want to run it on two PCs. If you're stout of

is, the world's longest-standing games platform, there's an off-puttingly large back-catalogue of forgotten classics. Fortunately, publishers have begun using 'em as marketing fodder for upcoming titles and sequels, so more old retail games are being released for free.

**on the disc**

# Never buy an app again

## Don't believe the myth that free software is rubbish, it isn't…

**1 OFFICE SUITE**

You'll have surely heard of *OpenOffice* by now, and immediately dismissed it as some monstrously crude, HTML-powered antique only a drooling Linux fanatic would consider using. You're wrong – unless you're a business and into all that tedious collaboration nonsense, there's simply no need to beg, borrow or steal a copy of *Microsoft Office* or *Works*. With last year's release of version 2 (which included a word count feature, a godsend for us penny-a-liners) *OpenOffice* is now the real deal.

By way of proof that *PCF*'s faith in *OpenOffice* is absolute, these very words were originally written in it. A word to the wise, though – change the default save format to .doc as a priority, lest friends, colleagues and relatives admonish you for continually emailing them .odt files. **www.openoffice.org**

**2 IMAGE EDITING**

In fairness, nothing's ever going to rival *Photoshop* for power and elegance of UI, but that's because nothing else has anywhere near the R&D budget ploughed into it. The *GIMP*'s a funny bugger – it certainly does all of *Photoshop*'s most crucial functions, but they're hidden under a truly oddball interface. It's perhaps not ideal for creating elaborate artworks for that fantasy novel you're writing (that would have been picked up long ago if only the publishing industry wasn't so closed-minded), but for day-to-day photo-editing, it does the trick just fine. Most importantly, it has a zero rather than three-figure price tag. **www.gimp.org**

### OTHER COOL FREE STUFF!
### Tools to stay secure online

**PeerGuardian 2**
Torrenting stuff you shouldn't, or just uncomfortable about the suited 'n' booted powers that be remotely poking around your hard drive? Mask known over-inquisitive IP addresses with this. phoenixlabs.org

**ZoneAlarm**
Better than Service Pack 2's basic Firewall and just as free, ZoneAlarm will keep the hackers from your PC's ports. It can be a bit over-zealous, so expect to have a few headaches configuring online games at first. www.zonelabs.com

**Spybot**
There's more spyware hunting apps in the world than there are L Ron Hubbard novels in Tom Cruise's attic, but Spybot: Search & Destroy is still PCF's fave. Very thorough and offers immunisation as well as cures. www.safer-networking.org

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# A desktop less dear
Attention bargain hunters, here's what the completely free desktop looks like. Not threatening, is it?

**Netvibes**
RSS is no longer bound to unwieldy desktop apps – the best news feed readers are Web 2.0 fare, such as Google, Blog Lines, and current office pick www.netvibes.com

**Evolution**
The *Outlook*-a-like is an early doors Linux port, so isn't quite at its best in Windows – but nevertheless is a fine, 100% free alternative. shellter.sourceforge.net/evolution/

**Blender**
The freeware 3D design app that makes the big boys leave suspect marks in their £500 knickers. www.blender.org

**Album Cover Art Downloader**
MP3 collection lacking artwork? This'll scour Amazon for appropriate pics for your every album. kempele.fi/~skyostil/projects/albumart
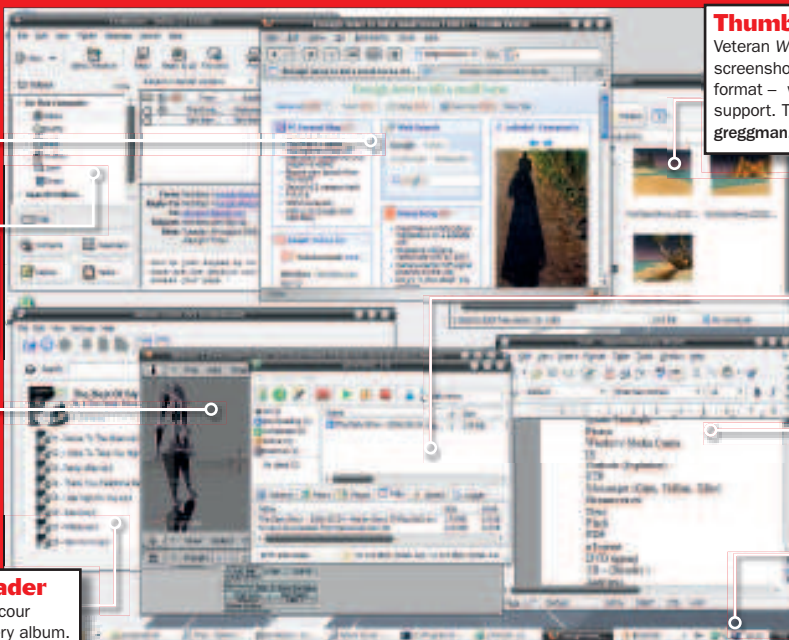
**Thumb Plug TGA**
Veteran *World of Warcrafters* will know it screenshots in the popular uncompressed TGA format – which Windows' thumbnail preview doesn't support. This free plugin will twist its arm to do so. greggman.com/pages/thumbplug_tga.htm

**?Torrent**
Forget chuggy old *Azureus*, or the banned-by-registration-only-sites BitComet – the ultra-lightweight ?Torrent is the current Bittorrenter's weapon of choice. www.utorrent.com

**OpenOffice**
Betcha hadn't realised this wasn't *MS Office* until we told you, had ya? Seriously – it's a more than adequate replacement these days. www.openoffice.org

**PeerGuardian 2**
This winking blue sphere is *PeerGuardian*, merrily blocking the entertainment industry from trying to see what you're downloading. phoenixlabs.org

### 3 MESSAGING

There's a lot of talk about cross-network instant messaging, but go the official route and you're still picking sides rather than being able to say 'LOL' to the entire world. Free apps *GAIM* and *Trillian* (the latter has a free as well as a paid version) will cheerfully talk to all the different protocols – notably MSN, Yahoo!, AOL, ICQ and Jabber – and without all those tacky ads. Of course, *Messenger* is free, but we discount it because a) it's Microsoft and b) it's ad-supported. **gaim.sourceforge.net**
**www.ceruleanstudios.com**

### 4 ANTIVIRUS

*Norton*, *McAffee* et al rule the AV roost, but there's really no need to fork out for their annual updates and subscriptions (and cold, uncaring dismissal of attempts to install one copy on multiple machines).

Common sense will keep most viruses off your system – but if that's in short supply, Grisoft's excellent *AVG Free* will manage a fine job of it instead, and without the impact on system resources retail bloatware usually has, nor the nag screens.
**free.grisoft.com**

### 5 EMAIL ORGANISATION

Sure, Mozilla *Thunderbird* is a fine replacement for *Outlook Express*, but if you want the full gamut of *Outlook*'s full fat incarnation without spending cash or jumping through product activation hoops, thank the lord for the intelligent design of *Evolution*. Formerly a Linux-only *Outlook* clone, it's finally made the jump to Windows, and supports an almost outrageous degree of similarity to Microsoft's flagship email, calendar and contacts app.
**shellter.sourceforge.net/evolution/**

### 6 WEBPAGE DESIGN

Let's be honest, how much of *Dreamweaver* are you actually going to use? And is it £400's worth? No. No, it isn't. Fortunately, *Nvu* (pronounced N-View, irksomely) contains the fundamentals and then some of website-building and management – it's more than enough to make a spanking new website or blog template that works in every browser going. Mercifully, it's entirely GUI-based too, so you can just drag and drop stuff around with nary a thought of the code underneath. **www.nvu.com**
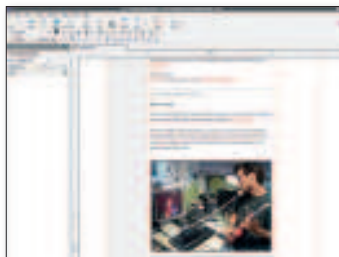
### 7 CD/DVD BURNING

Windows XP has built-in support for basic disc burning, but it leaves an awful lot to be desired and retail packages like *Nero* and *Roxio* may be packed with more thingies, wotsits and hoojums than a Toys'R'Us warehouse, but cost real Earth pounds to obtain. *CDBurner XP Pro* (enough hyberbolic xtensions there?) falls between two stools, offering advanced features like audio CD creation and .ISO & .NRG support, but not often overblown fare like DVD-video mastering. Pshaw.
**www.cdburnerxp.se**
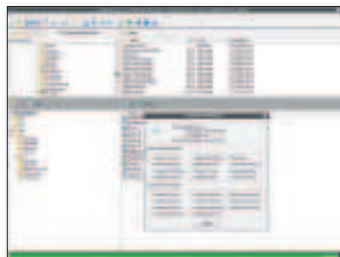
### 8 DTP

*PCFormat*'s pages are laid out in *Adobe InDesign*, as the result of a costly and time-consuming industry-wide shift from olde worlde favourite *QuarkXPress*. In an ideal world, though, we'd have rounded up every single one of Future Publishing's Art Editors and locked them in a cellar with a copy of the free *Scribus* until they'd abandoned their errant OS X ways and come to love it. Alright, it's perhaps not quite ready for industrial use, but for making fanzines, flyers and posters, it's perfect. **www.scribus.net**

## OTHER COOL FREE STUFF!
### Windows & desktop

**DeviantArt**
The web's premier resource for wallpapers, icons, skins and mad visual randomness.
www.deviantart.com

**Uxtheme patch**
Fortunately it's possible to remove Windows' unnecessary third party visual theme blocks by installing the crack from tinyurl.com/55bbp

**Lclock**
Replace that tedious clock that lurks at the bottom right of your screen with something snazzier.
tinyurl.com/7k4hm

**Object dock**
Vista's already stolen most of Mac OS X's gimmicks, so why not go the whole hog and fit a handy application launcher dock to the bottom of your Windows too?
www.stardock.com/products/objectdock

> **"It's perhaps not quite ready for industrial use, but for fanzines, flyers and posters, it's perfect"**

## The Linux question
### Nothing says 'free' like an operating system without a Microsoft tithe attached

**P**CFormat is biased. Horribly, irredeemably biased. We're biased because Ubuntu (covermounted on PCF 191) is the only version of Linux we've tried that we've managed to stick with for more than a few months before the wailing and screaming began, and wouldn't stop. Oh, don't get us wrong – it sometimes seems like every one of its kernel updates (which, at least, aren't automatically installed in XP) borks our graphics card drivers and we then have to spend two hours miserably typing nonsense into a command line to fix it. But, that aside (and actually it's gratifying to learn how to fix it) with Firefox, OpenOffice, Evolution, GAIM and The GIMP installed, it's so close to what we're used to in Windows that there's almost no reason not to use it, especially as it's more stable, secure and faster.

The most recent release, Dapper Drake (yes, we know – the next version's called Edgy Eft, for heaven's sake), is a truly slick. The added benefit of enabling you to try it out from a Live CD without installing anything permanently unless you like it enough to want to do so.

SUSE, Mandrake, Debian et al are all fine Linux distros, but Ubuntu is the most pleasing to use. Gaming remains a major omission (because there's no DirectX in Linux), though is possible to some extent through the subscription service Cedega (www.transgaming.com). But if that's not your bag or you're happy to dual-boot your system, there's really no reason to kneel any more at the shrine of MS. www.ubuntu.com

# Free iPod?

## Can the infamous free iPod schemes really do what they say they can?

**S**o here's the deal. Go to a site such as **freeipod.co.uk**, sign up with your name, email and address, then agree to an offer – for instance, spend £10 at online bingo (it's endorsed by *PCF* favourite Kerry Katona, donchaknow) or a free 21-day trial of a DVD rental service – persuade three friends to do the same, and you get yourself an iPod Shuffle. Persuade 11 friends, and a 60GB iPod video will be yours. Too good to be true? Actually, it's not. Inevitably, most folk who sign up are canny enough to cancel before the money begins pouring out of their bank accounts, but the few that don't are enough to support the free iPod expenditure. In the name of journalism, the *PCFormat* team created a slew of Gmail addresses, ready to absorb a potential torrent of spam, and duly signed up for ScreenSelect trials. We'll let you know next issue whether or not we've had an iPod in the post and what kind of horrors our honey trap inboxes have been subjected to. What we can tell you now is that a *PCFormat* reader who shall remain nameless attempted the same thing, registering for the same site and the same trial DVD rental service with 10 different names, all attached to the same credit card. For his troubles, he received an Xbox 360. Free. So, the system does work – but it's a matter of whether or not you're prepared to either rope a bunch of friends into it or perform a teeny-tiny spot of identity fraud yourself.

> **"Most folk who sign up are canny enough to cancel before the money begins pouring out"**

# Free gigabytes
## Unlock hidden space on your hard drive

**F**irst, a word of caution. There are reports this extra space can become corrupted over time, so storing irreplaceable baby snaps in it maybe isn't the best idea, but there are also reports or it working really well. Be warned that there is the chance of irreparably borking your drive too, but the risk can be worth it – on the 200GB drive *PCF* tested this on, we unlocked an extra 100GB.

Right, go get yourself a copy of *Norton Ghost 2003*, build 775. You can still pick up copies of this version, if you know where to look… cough.

Now you need a second drive with a bootable OS on it with which to confuse *Ghost*. Attach it as a secondary device and boot with the drive you want to expand.

Start up *Ghost*, select Ghost Basic and Backup from the menu. Choose the boot drive as source and the secondary drive as target, it doesn't matter where you choose to install on the second device as nothing will get written to it anyway. Continue through until it asks you to reboot the machine. You *must* then power off your machine just after the BIOS recognises the hard drives on the post screen and before *Ghost* has a chance to do any of its jiggery-pokery.

Swap the drives around to boot from the second device then from Windows right-click on My Computer and select Manage. Go into Disk Management and you should now see extra unallocated space in a partition on your original drive plus a partition called something like VPSGHBOOT. Before deleting this partition you must create a new one in the currently unallocated area by right-clicking on the space and selecting the appropriate item from the subsequent menu.

Once this new area is partitioned you can delete the VPSGHBOOT partition and you should now have two partitions and a load of extra space. One vital thing, DO NOT MERGE THE TWO PARTITIONS INTO ONE! You'll mess up your hard drive.

## OTHER COOL FREE STUFF!
### Music & movie multimedia

**Media Player Classic**
Yes, Windows Media Player 10 or 11 is free, but it's also a big bloated monster that sticks its talons all over your system. MPC takes the minimalist stylings of WMP6 and bundles in advanced playback features for all file types – it's essential. sourceforge.net/projects/guliverkli

**Yamipod**
Think you can't copy tracks back from your iPod to a PC? Well, that's actually not true. This tiny app runs directly from your iPod without the need for any installation, and will play back music, and enable copying to and from your iPod. www.yamipod.com

**Audacity**
Unquestionably the best free sound editing app going, with features that rival pro apps costing hundreds of pounds. audacity.sourceforge.net

# Play for nowt

## Game publishers are laughing all the way to the bank. £45 a game? £9.99 monthly subs? There is another way

There's a long and grand tradition of free games on PCs. Be it shareware versions of *Doom* and *Quake* or MUDS for your MMO pleasure, there have always been free ways to play on PC both on and offline. What you may not realise is that there are a wealth of free, modern games too. What's more, it's not all cheap puzzlers or Flash Arcade rip-offs, there are a surprising number of AAA commercial titles and innovative indie games out there, legally downloadable and just waiting to gobble your time, gratis.

### F.E.A.R. COMBAT
The multiplayer wing of the spooky *F.E.A.R.* mansion has recently been made available for F.R.E.E. It's the weaker of the two halves when you look at the game as a whole, but you won't find a better-looking free game on the web. Get into the gunplay at **www.joinfear.com.**

### HIDDEN & DANGEROUS
Illusion Softwork's seminal tactical shooter is one of the finest examples of the genre. The Deluxe version of the WW2 FPS, complete with two expansion packs and graphical updates not only gets rid of the bugs infamously present in the original, but also leaves your wallet undamaged at **www.godgames.com/ hd2/ hddeluxe.html.**

> **"There are a surprising number of AAA commercial titles and innovative indie games"**

### WOLFENSTEIN: ENEMY TERRITORY
With *Quake Wars* loomingon the horizon from the UK's Splash Damage, now might be a good time to take a look at *Wolf:ET*. If you've never experienced the finer intricacies of class-based shooters this will stand you in good stead for the coming Strogg invasion. **www. splashdamage.com**

### AMERICA'S ARMY: SPECIAL FORCES
It might be a blatant recruiting tool for the US military but there's no denying the polish of this gem. It still ranks in the Top Ten games played online thanks to its dedicated community and utterly free price tag. **www.americasarmy.com**

### TRIBES
*Halo*, *PlanetSide*, *Battlefield* and even *Op Flashpoint* are all thanks – in part – to the success of *Tribes*. Combining some of the largest environments in any game ever (even if they do get randomly generated beyond a certain range) and doing the vehicular combat thing way back in '98, *Starsiege: Tribes* deserves respect. **www.planettribes.com/tribes**


*F.E.A.R. Combat*: The multi-player wing might be the weaker half of the game, but it's still brilliant, totally free, fun.


*Hidden & Dangerous*: No bugs here.


*Wolfenstein ET*: Class-based shooter.


*Tribes*: Largest environments ever.


*American Army*: Dedicated community.

### OI! I DON'T LIKE SHOOTERS!
Don't like AAA eye candy? Try these…

**TORIBASH** Full review on page 104. Turn-based beat 'em up that we can't stop playing. www.toribash.com
**GTA 1 & 2** What do we need to tell you about Grand Theft Auto? It's kind of in the title... www.rockstar.com/classics
**BATTLECRUISER MILLENNIUM** Space shooter, flopped from bug infestation but now patched and free! www.3000ad.com/downloads/bcm.shtml
**FREECIV** Civ, for free. Open source and always being tweaked. If you like your Civilization Sid-less, try this. www.freeciv.org

# TV & tunes

## How to get your multimedia for nothing and your kicks for free

**Y**ou can now forget *Pro Evo*, *Guitar Hero* and watching *Spaced* on repeat – there's a new post-pub drunken sport in town. It's called "watching random crap on the internet and laughing a bit too loudly," though this name does have some regional variations. It goes without saying that YouTube is king of free video hilarity, but we'll say it anyway. However, in the vain hope of contributing just slightly to it not dominating web video in the way Flickr now governs web photos, here's a few other ways to revisit that special kind of low-budget weirdy-beardy entertainment that 2AM Channel 4 used to specialise in, together with some altogether more cerebral pastimes.

### YTMND.COM
The concept is simple – upload an image and an audio sample, then loop it. The execution is usually baffling, often hilarious, and always because of the insane juxtaposition of two entirely unrelated things. Take our current fave 'What's new Khan', a snippet of Tom Jones with Bill Shatner's preposterous bellow from *Star Trek II* edited into it, his screaming face in the background.

### MP3 BLOGS
Coasting on the keen edge of the law, and usually allowed to get away with it because they're designed to promote lesser-known artists, the ever-swelling ranks of the MP3 blogs are the best way to discover new music for free. Check out **music.for-robots.com**, **tofuhut.blogspot.com** and **www.fluxblog.org**.

### ARCHIVE.ORG
Most renowned for The Wayback Machine, a cache of websites as they used to be, archive.org's true value lies in its enormous back catalogue of vintage, copyright-expired movies, TV shows, audio and animations. **www.archive.org**

### WWITV.COM
Nothing to do with low-rent celeb-nonsense, but rather a huge database of links to free streaming TV channels from the globe over, including some BBC stations. **www.wwitv.com** **PCF**

### OTHER COOL FREE STUFF!
Random gobbets of pure fun

**rathergood.com**
Bizarre, and often joyously offensive, animations and video mash-ups.

**Penn & Teller**
23 episodes of the magician-comedian duo's subversive TV show – tinyurl.com/gxfge.

**www.hasbro.com/action**
Complete, streamed episodes of various kids' cartoon shows, including Transformers.

**www.newvoyages.com**
Almost watchable Star Trek fan films, continuing Kirk et al's adventures.

**www.fanfilms.net**
A huge archive of painful, funny and touching home-brew recreations of everything from 24 to Xena.

## OPENING PANDORA'S BOX
Free music service that changes everything

**T**here are people who want to discover new music, and people that just want to be force-fed remarkably similar fare for the rest of their lives. Pandora hits somewhere between the two – people who want to hear music that's very much like what they already listen to.

Just type in a song or artist you're partial to, and it'll present you with a playlist of tracks with similar features – some will have vocals in a comparable style, some with analagous tempo, or the same style of drumming, and so forth, from a database of dozens of categorised song elements. Interestingly, Pandora doesn't rely on computerised analysis of songs in order to ascertain said elements, but rather hires 40 professional musicians to listen to every new track added and manually list what it contains. This is positive because it means you're not given near-identical tracks, but songs that contain related nuances, thus your station is more pleasingly diverse.

Unfortunately, the whole being free thing is raising a couple of issues. Pandora is ad-supported, limited to a certain number of tracks unless you register with a US (or faked-US) address, and only allows a few track skips in order that it stays closer to a radio station than filesharing, thanks to record industry stipulations. But it still remains the best way to find new music you like. **www.pandora.com**

## The men from Auntie
BBC pioneers free web entertainment

**T**he Beeb offers one of the web's most spectacular packages of free stuff. The news content you'll doubtless have sampled for yourself, but a dig around Auntie's various sites reveals far more – full pilots for new shows, random episodes and clips from established programmes, live and archived radio from all its stations. It's enough awesome free stuff to almost make you forget that this is the station behind fatuous cack like *Dragons' Den*, *Strictly Come Dancing* and *EastEnders*, although such horrors are also available for bite-sized revisiting on the site.

ITV, meanwhile, is trying to keep pace, but its clips of culture entropy like *Bad Lads' Army* are completely undermined by (inevitable) adverts everywhere, and an inexplicable panel for *Yahoo!* top searches that lists digital TV and debt advice. Channel 4's the real competition, though it's far less completist about things – but it does have trump cards like complete episodes of *Lost* and live *Big Brother* streams to offer.

# 10 ways to make an old PC useful again

## That Pentium II under the stairs has plenty of money-saving uses left in it


on the disc

### 1 DIY ARCADE MACHINE

Your old box should be able to run arcade machine emulator *MAME* – download the graphical interface version from **mame32qa. classicgaming. gamespy.com**. Better yet, grab an old PCI graphics card with a TV output and connect to your telly for old skool thrills from the comfort of your sofa. Finding game ROMs to use with *MAME* is a different matter due to legality, but Google is always there to help…

### 2 MAKE A JUKEBOX

Rig your old PC up to your hi-fi system and you've got yourself an MP3 jukebox. You can even ditch the monitor if you like – put a shortcut to *Windows Media Player* in your Startup folder, so the program will auto-load when Windows does. Create a new playlist containing every song on the PC, then set *WMP* to random playback mode (under Play – Shuffle or press Ctrl+H). If you've not got one already, pick up a cheap keyboard with media playback controls (for instance, **tinyurl.com/**

**ryfdx**, £7 from ebuyer). You can then load the PC up without a monitor attached. Pressing the Play key will start playing songs at random.

### 3 SAVE THE WORLD

Distributed computing is one of the most philanthropic uses there is for an old PC. Essentially, it's for scientific projects that require an awesome amount of processing power, such as analysing DNA to help find cures for diseases, or scanning interstellar static for signs of alien life. Any PC can dedicate its spare processing cycles to the task, automatically sending and receiving data chunks over the web. The readers of *PCFormat* have set up teams dedicated to contributing their clock cycles to the Cancer and SETI (Search for ExtraTerrestrial Intelligence) projects – see **forum. pcformat.co.uk/viewforum.php?f=5**.

### 4 SECOND TELLY

An old 19-inch CRT monitor makes a perfect second telly. You can pick up external TV tuners such as the Trust Combi TV-PC Pop View (£55 from **techstore.co.uk**) – plug an

aerial cable or a Freeview box into one end and the VGA lead from your monitor into the other, and you've got yourself a fully-functional TV.

### 5 MAKE A GAME SERVER

Most major multiplayer games let you run dedicated servers that only have to deal in internet traffic and doesn't have to load the game itself, meaning it doesn't need a fancy 3D card or a beefy CPU. It saves slowing down a player's machine's performance, and removes the risk of one player's BSOD taking down the entire game.

### 6 PVR BOX

A 700MHz CPU is enough to record live telly with a basic PCI TV tuner like Hauppauge's WinTV GO-Plus. If you want a media centre rig without dropping £80 on *Windows MCE*, then try *SageTV* (**www.sagetv. com**) – a £20 program designed to be usable over the lower res of a TV screen. Also, *MediaPortal* (**www. team-mediaportal.com**) is free but needs a more modern 1.4GHz CPU

### 7 CASE MOD IT

PCs have been built into everything in the past – from LEGO structures to toilets, to horrifying life-size recreations of Leela from *Futurama* (seriously, look – **vang1.net**), so it's well worth trying something similar with a spare old system – a low power, low heat computer that can be installed into a small space without the need for huge cooling fans is ideally suited to the task.

### 8 INSTALL WINDOWS XP ON IT

See p126 for a guide to using *nLite*, an app that can create customised installs of Windows XP – it even has an option to bypass the minimum specs check.

### 9 PLAY OLD GAMES

As we tend to discover every month for our Restart section, classic PC games from the 80s and early 90s rarely play nicely with Windows XP – they're designed for a text-based OS, not DirectX and registries. So, have that old PC dedicated to running DOS – if you have the original install floppy discs or can find them on eBay, great. Otherwise give *FreeDOS* (**www. freedos.org**) a try. For a less strenuous solution, install *DOSBox* (**dosbox. sourceforge. net**) – it emulates a DOS environment within Windows.

### 10 TURN IT INTO A FIREWALL

Even the dustiest old 486 can be used as a hardware firewall. Give *m0n0wall* a try – **www.m0n0.ch**. Setting it up isn't exactly a walk in the park and is too lengthy to document here, so we'll defer to the site's own helpful guides on getting it up and running.

## "PCs have been built into everything in the past – from Lego structures to toilets..."

You should have got those lances down a little eariler, boys. Unlike the Medieval era you won't get a second chance.

# World Wide
# WAR!

James Carey and Anthony Fordham get Medieval with a Creative Assembly that spans the globe

**Creative Assembly** reinvented wargaming with *Shogun: Total War*. Since then, the UK company has been constantly revising and updating its two central tenets of slow, Machiavellian strategy in the campaign map and think-fast tactical decision-making on the battlefield.

Each new game in the *Total War* series has built on, rather than rebuilding, these central pillars, even if the engine has changed completely along the way. With this constant sense of evolution, it might seem odd that CA is returning to an era that it's rebuilt for *Medieval II: Total War*, but we discovered that,

with the overwhelming bulk of *Medieval II* being developed by CA Australia, making the Next Big Thing in strategy gaming has as much to do with geography as it does history.

"We wouldn't pick an era that didn't represent an awesome time for a *Total War* game," asserts CA's Ian Roxborough, over a pint in a pub

Units now become bloodied in battle. You can actually see how individual soldiers are doing by how bloodstained their armour is. Dust and dirt makes a mess too.

## "CA has invested heavily in the campaign mode for Medieval II, and has spent months on painstaking research"

# MEN AT WORK

CA's Australian team is taking over most of *Med II*'s development in the land down under

The only castles in Australia might be the bouncy kind, but Creative Assembly has nevertheless invested heavily in building its Brisbane-based Australian studio. "Rome: Total War was mostly developed in the UK, with only certain tasks being done here in Australia," Project Lead Ken Turner explains. "But with Med II, the bulk of the work has been completed at the Brisbane studio. The UK only really handles things like motion capture and localisation." The UK team is also working on standalone historical battles that will ship with the game.
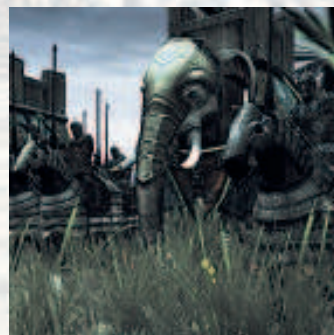
### BEST OF BRITISH



>> So, the Aussies might know a thing or three about designing great games, but the historical fights are being left to the UK. Hastings, for example, uses aerial photography and land surveys, and like all the Historical Battles features a detailed history lesson intro. In this way, the settings gains credibility. "We considered delaying the game for forty years to hit the thousandth anniversary of the battle," jokes CA marketing man and former PCF contributor Mark Sutherns.

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across from its UK base. "To a certain extent we didn't get everything we wanted to out of the Medieval era." *PCFormat* is not surprised to learn that CA has a policy of recruiting team members with academic qualifications in history, but a little taken aback that the period setting is not their primary concern. Before *Medieval II* was announced, no-one anticipated a return to a previously visited age. A new period of humanity's war-torn past, surely, or even a fantasy setting, but back to the Medieval times? Nah.

### IT'S ALL IN THE PAST

"History is not a driving force, that's always been the fun elements; the game itself. Those fundamentals are still what CA is about. The focus is always going to be the Campaign Game and the Battles. Those are the things we care about, have to be passionate about. About history of course, but the *game* first." The round-table of developers and *PCF* staff share a knowing laugh about how *Shogun* got us interested in feudal Japan, how we watched the Richard Chamberlain-starring *Shogun* TV series and bought the 'Hagakure', took up Kendo and so on, just because of that

game. CA's on to something with that, we suggest, because there are a gazillion historically accurate Civil War games, but the only ones that actually get us *excited* about history have *Total War* in the title, and that's due to the quality of the game, not its setting.

"Our aim has always been to capture the feeling of what war was like, what it's like to rule an empire, to fight in battles. Almost participating in your own version of history, your own sword-and-sandles movie, if you like. A sandbox where players are never forced into a fixed story but can create their own. All the potential history of our chosen period is in there. It's a sandbox of elements though, of history, of content, but the player has to find their own way through it. As

soon as you start putting a player on a track you are restricting their experiences, and limiting their interaction with the setting. The kind of people who get a lot more out of *Total War* are the people who can create their own narrative, create their own stories from the events of the game. But there's so much more that can be worked on in that

area. Stuff like the character units that are in there, giving the game more of a personality."

### AND SO TO BATTLE

Now that individuals on the battlefield will actively engage other individuals in one-on-one combat within the mêlée, as a player, you

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# Castles versus cities

Two types of settlement for double the fun.

Multiple units can be built per turn in more developed castles and cities. The bigger the structure, the more troops you can levy. You can tax populations in cities and build marketplaces for trade, but they're harder to police, as you also have to keep people happy. Castles, on the other hand, generate no income but you can build better, easily disciplined units. There are crossovers on the build tree, so you can build barracks in a city for example, but it won't be able to generate high-level troop types. You can convert the sites, too.



>> TRADE WARS



**Mike Simpson**
"The thing that drives my passion for *Total War* games is the purity of the mechanics and the scope they offer each time we sit and begin to plan the next title. In addition, the historical setting for our games gives me satisfaction."

## Guild Masters
### You will never find a more wretched hive…

If you use a lot of assassins from one particular town, that town will earn an option to build an Assassins' Guild. Bruges might become the spying capital of the world for example, eventually giving the player the chance to build a Masters Guild for espionage. Only one faction in the game can have the Masters Guild for a unit type, so a player of the English faction using London to produce large numbers of skilled merchants will turn England into the best place to trade.

>> **GUILDING THE CITY**

even start to build relationships with the rank and file. It's no longer a case of becoming attached to one successful general, but getting fond of individual pikemen, rooting for them as they visibly hunt down and spear men. It's sad that these relationships tend to end rather abruptly, but hey – that's war.

### DIPLOMATIC CORE
"That's something you can play on as well," continues Roxbrough. "You don't want to necessarily grab people by the hand and pull them through and say 'look at this bit' but they can dip in and out, taking things like that and creating their own stories. There's so many things like that and as we make successive *Total War* games I think the fundamental remit will always be the same, but we'll be exploring each of the different game mechanics in details just like that; making more accessible, deeper and richer. Because, for me at least, that's the magic of *Total War*, this whole huge combination of elements, the connection between all the little bits. The war provoked

on the strategy map is directly connected to that battle you're fighting on the real time map and then right down to the fight between those two men."

So are the connections the thing to focus on in future, *PCF* wonders? "Not the focus as such," Roxbrough muses, "though connection needs to be developed, certainly. But the pillars of *Total War* should remain separate. We shouldn't be going down a road when you're combining them like say building things on the battlefield because that's not how it was. What we're doing is building on the core strengths of the series and tweaking bits to add more depth. We broke the back of the 'big idea' with *Shogun*, combining those core elements and getting that many men to fight convincingly on the battlefield, from then on we could build on that."

On the other side of the world, CA Australia is in accordance with this ethos of evolution, as *PCF*'s Man in Oz Anthony Fordham found

units were all identical. Now, each unit has a subtly different uniform, facial hair, skin tone and features." Toose is also keen to point out that the animated behaviour of individual soldiers is also now much more sophisticated. "It's not just the individual one-on-one fights during the mêlée, but the varied idle animations and the different gaits as a block of men charge." It's hard to believe the extra depth this lends to the game. Suddenly everything looks so much more *alive*. It's a truly dynamic, living battlefield now.

### DIPLOMATIC CORE
All of this is achieved with thousands on men on screen, as Turner explains: "If you look closely at the combat, you will see it's mostly what we call 'Hollywood fighting.' The men don't actually hit each other; the combat looks authentic, from the way the camera is manipulated. That means we don't use any collision detection in one-on-one combat, which saves on processor overhead."

Unbelievably, the graphics engine manages to achieve this impressive level of smoke-and-mirrors detail with Shader 2.0

## "The new elements of Medieval II represent an extraordinary amount of effort and an incredible level of detail"

out when he spoke to the men actually crafting the game. "There's just so much that's new," says designer Dan Toose. "While *Rome: Total War* was our starting point, we ended up throwing away most of the code and building from a new foundation." Project Lead and engine builder Ken Turner agrees. "We had to strip the engine right back. And that was mainly to avoid what we called 'attack of the clones.' In previous games, the human faces and uniforms of the

extensions, with most of the finer details coming from the art.

CA has invested heavily in the campaign mode for *Medieval II*, including spending months on research. "We've increased detail of the map, because you'll spend so much time looking at it," Toose says. For him, the biggest improvements centre around the way the game communicates with the player.

"We now give you much more information about the diplomatic side of the games. You'll get an

**The new flora isn't just for show. Fighting in woodland has always come with penalties but now tall grass and shrubs have their own pros and cons too.**

Imagine 10,000 people doing this sort of thing to each other.

indication of how generous each deal is, and an expectation of how your potential ally will respond. After a deal goes through, you'll get a response, such as 'That was an incredibly generous offer!'"

Toose's hope is that players will start to second guess their own strategies. If an enemy accepts a peace treaty too eagerly, does that mean the terms were too generous?

Settlements on the campaign map are now split into castles and cities. While castles are used for defence and production, Toose says cities will come into their own in the very late stages of the game.

"Eventually, once you have gunpowder, cities will be able to churn out thousands of militiamen, all armed with guns, who simply don't need the numerous years of training and experience that a force of knights does."

The new elements of *Medieval II* represent an extraordinary amount of effort for an incredible level of detail. Creative Assembly believes the nature of the game demands it.

"This is an historical game, its aim is to be accurate and realistic," says Toose. "There's nothing worse than starting a battle, zooming in and seeing all your men are clones. Or making diplomatic choices that seem to go on the roll of the dice. It breaks the immersion, destroys the suspension of disbelief. That's why we're putting all this effort into the game." From what we've seen it's *really* paying off. **PCF**



Great shader effects have been applied but the engine retains the 2.0 model.




The individual animations add unbelievable life and depth to the new battlefield.

**It's quite** astounding that *Medieval II* produces the same feeling of wonder that we first experienced with *Shogun*: that wow factor at seeing so many men fighting, combined with such an elegant strategy map. The sheer level of detail in *Med II* battles blows you away all over again as you marvel at the visceral charge of cavalry or clash of swords. Perhaps CA thinks that it doesn't need another quantum leap in game design?

"Well I certainly think it would help," laughs Roxbrough, "but I think yeah, we do. We have that whole dual development thing going on where you take your first ground breaking engine to the limit (the Shogun engine, developed through to *Medieval*) while still working on a brand new engine from scratch behind the scenes (*Rome* at the time, now being pushed for *Med II*). That's certainly a philosophy CA has had from the very beginning and not something we're jumping away from. In order to stay ahead of the competition, because those guys are going to catch up, you have to be working one step ahead."

What steps are they? CA isn't telling. When the time comes and this engine is at its own limits we'll surely see a new, perhaps unexpected pillar for *Total War*. "We're not just gonna go 'Rome, Medieval, that's great, let's just stick to those core tenets' we're always going to be looking at ways to break new ground." Frankly, we'd expect nothing less from

# It may be grim up north…

## …but the TV reception is awesome. The aptly-named Mike Channell works out how to reclaim his Freeview

**D**on't get us wrong, Bath is lovely, and our council tax reflects this, but it nestles in somewhat of a broadcasting black hole. For a start, Freeview is almost entirely out of the question for those that live in this natural, and televisual, depression. All those wild-eyed claims of the digital signal reaching every cubed centimetre of airspace in Britain were clearly codswallop. Not only that, but even the not-so-fledgeling Five can't duck into the Bath bowl, meaning no obscure American sports at 1AM.

Unfortunately, unless you own a shiny piece of newfangled technology (see Box Clever, right), there's nothing you can do to harness the signal. Even with a signal booster, there's just no way to claw down those waves from over our heads. Well, we have a solution.

As *PCF* has a kind parent in the shape of Mike's mum, who lives way up in grimmest Yorkshire, in the shadow of Emley Moor transmitter, we do have access to perfect reception. It just happens to be 206.1 miles away. But with the wonders of broadband, there's no reason why a bit of DIY rebroadcasting can't squirt it down to Somerset. Our methodology isn't pretty, and it involves a bit of fiddling, but when you're done, you should have complete control of a TV card-endowed PC, enabling you to watch live streams, schedule recordings and download programmes.

### 1 Hamachi

The first port of call is Hamachi. We've been bowled over by how simple setting up a secure virtual network is with this useful app. Grab a copy of it from www.hamachi.cc and install it to your host PC. The program runs through a wizard on launch to help you set up a VPN, but the gist of it is ludicrously simple. Your network is identified by a name and a password, as long as you can remember them, you can connect to your Hamachi virtual network. Set up one of these networks, and organise Hamachi to start as soon as Windows boots.

### 2 Ultra VNC

Windows Remote Assistance is all well and good, but if we're going to be constantly dipping in and out of our remote PC, we need something a little more hefty. UltraVNC is a free app, available at ulravnc.sourceforge. net. When you install it, we recommend registering it as a system service and adding desktop shortcuts.

Once you've unloaded the app, you'll see a pair of eyes staring at you from your desktop. The blue shortcut is the UltraVNC Server, which must be running on the PC with the Windows Media compatible (or WDM) TV card, and the green one is the UltraVNC Viewer, which enables you to connect to a PC running the server and control it. Grab your broadcasting PC and boot up the server. There's a baffling array of clickables, but the only one to worry about is setting a password.

## 5 Streaming live television

Loading up your TV card's software will not, unfortunately, present you with a watchable TV feed. This is simply because there is no way that UltraVNC could update that quickly at the quality it allows. What we need for a live TV stream is good old Windows Media Encoder, from tinyurl.com/g37zo. Of course, this needs to be installed on the remote PC, but with UltraVNC running, you could conceivably download and install it remotely.

Either way, ignore the new Studio edition and just go for the 9 Series edition. Using the wizard, choose to broadcast a live event and select your TV tuner as the video device ensuring that your TV software isn't currently running. Select to pull from the encoder, choose any old port number you like and select 282Kbps as a bitrate, which most broadband connections should be able to shift along happily. Select Begin Encoding When I Click Finish and you'll see your TV stream as it encodes. From your remote PC, boot up Windows Media Player and click File > Open URL. Type in http:// then the Hamachi IP address of your server machine, followed by a colon and then your port number (for example http://5.50.41.21:8080) and after a bit of buffering, your live stream should appear. Once the stream has started, you'll be able to load up your TV software in UltraVNC and change channels or tinker with volume settings. Congratulations, you should now be able to take your TV wherever you go.

## 4 Recording

Obviously, while you can't see the video, as long as you checked your TV card was working before you disappeared off to whatever foreign climes you want to watch telly from, you should know it's working. This means you can fire up your standard TV software, or PVR software such as Showshifter (www.showshifter.com) or Beyond TV (www.snapstream.com), and schedule a recording yourself. We'd suggest setting the software to record to your Shared Documents folder, so you can retrieve them over your Hamachi network.

Once you've recorded a file, because you're connected via Hamachi, going to Start>Run and typing in two backslashes then your server's Hamachi IP address (such as \\5.50.41.21) will give you access to your Shared Documents folder. Simply copy your recording across and watch it at your leisure. Live TV, on the other hand, is a touch more complicated.

## 3 Remote Control

Once you've set up your server and it's sitting in the taskbar, you can move over to your remote PC. In order to see your remote desktop, you'll need Hamachi installed on the remote PC too. Follow the wizard again, but this time choose to join an existing network, rather than create a new one. Enter the name and password of the VPN and you should be swiftly connected to your virtual LAN. On the list you'll see your server PC and its IP address. The IP is what you need to tap into UltraVNC and control your computer.
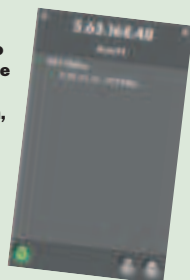
With Hamachi on and connected, head into UltraVNC Viewer and tap in the IP of your server and your UltraVNC password. You should be presented with a window, containing the desktop of your remote PC, and this is where the fun starts.

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# Box clever
## Alternatives to the DIY streaming route
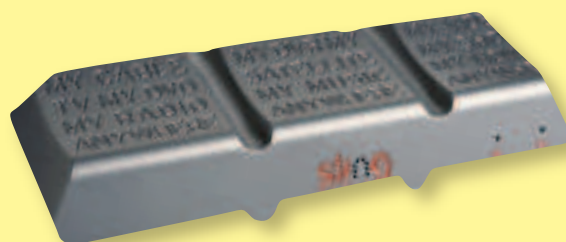
### SLINGMEDIA SLINGBOX
Price £179
Web www.slingmedia.com

The Slingbox is a bona fide favourite. A beautiful piece of kit, it includes a built in hybrid digital/analogue tuner and plenty of inputs. Connected set top boxes can be controlled by an infra red blaster and the software has both PC and PDA versions. There's no reliance on the PC, so as long as you have a spare aerial socket near an ethernet port, you can take your television wherever you go.

### Sony Location Free
Price £229
Web www.sonystyle.co.uk

Despite being £50 more expensive, the Slingbox-esque Location Free Base Station is still a desirable bit of kit, particularly if you have a PSP. In addition to the PC version of the software, there's a viewer built into the firmware of the company's slinky portable console. Unfortunately it doesn't have a built in tuner, meaning it's a set top box or nothing and extra copies of the PC software cost a staggering £20.

### Hauppauge WinTV-PVR USB2 TV Anywhere
Price £99
Web www.hauppauge.co.uk

It's the cheapest option by far, but Hauppauge's answer to the streaming problem is slightly different in that it's closer to our DIY method. Using the analogue WinTV PVR-USB2, you install a piece of free software called the Orb that enables you to connect to a website, log in, and view your own TV channels from anywhere with a browser and Windows Media Player. It requires your PC to remain on, though, and with no IR blaster, Freeview is currently out of the question.

# Power to the people

## Why pay for power when you can run your PC on air?

**"The cost of a turbine could fall to around £1,500 next year"**

**N**ever mind the monsters in *Prey*: the scariest thing about running a maxed-out gaming PC is the electricity bill. Sadly free energy isn't a reality just yet, but eco-friendly firms such as Renewable Device offer the next best thing. If you stick one of their wind turbines on your roof, you could save a packet.

The biggest problem with most eco-friendly power is the price. A decent set of solar panels can cost

**In windy weather this bungalow can fly! No, not really – but it can certainly reduce your electricity bills.**

more than £6,000, and it can take six, 10 or even 12 years before the savings cover the initial cost. Wind power has its downsides too: the noise can be distracting, and the vibration from the turbine can shake your house to bits. Renewable Devices reckons all of these problems have been solved.

By using a patented ring of carbon fibre blades the Scottish firm's Swift turbine virtually eliminates noise and vibration, but to be on the safe side, there are also dampers to eliminate any remaining shakes. At around £3,500 plus installation, a Swift is much cheaper than a stack of solar panels, and according to production engineer Gavin McCulloch, the cost of a Swift turbine should fall to around £1,500 next year – less than a top-line PC. Even without a price cut the Swift has proved

You'll see Swift turbines on some Tesco supermarkets: the chain is keen to become more environmentally friendly, and cutting power consumption is part of that.

ridiculously popular, with Swifts appearing on factories, offices, petrol stations and even supermarkets around the world.

So should you shell out for a Swift? Here's the science bit. A typical Swift will generate a very respectable 2,000KWh of power per year (the average UK household uses around 4,000KWh in a year)

and when conditions are right it kicks out 1.5KW – which is more than enough to power a fully loaded gaming PC. It needs wind speeds of around 2.5 metres per second to do its stuff (according to the DTI, the UK average is double that), and it feeds into the electric grid so you won't even notice when you're getting power from your turbine. If the turbine generates more power than you need, the extra capacity goes into the National Grid – and your power company pays you for it. You can also get some help with the cost of the turbine via the Low Carbon Buildings Programme (**www.lowcarbonbuildings.org.uk**), which offers grants of up to 30% for homeowners.

So what's the catch? You'll need a full structural survey – while the turbine can be bolted to an external wall or inside your roof, structural engineers need to be sure that your building's strong enough to take the load (most are) – and until the regulations change in the next few months you'll also need planning permission from the council, although as Gavin points out, councils are very unlikely to refuse your application. Last but not least, you'll have to wait a bit: Renewable Devices is building turbines like there's no tomorrow, but there's still a three-month waiting list – so if you fancy an eco-friendly Christmas, you'd better get your order in now.

**Renewable Devices Swift Turbines Ltd**
www.renewable devices.com



If you live in a flat, your landlord might already be considering wind power – and if he's not, he'll change his mind when he hears that 100% grants might be available to him.



# Power house

How the Swift turbine makes the most of the blustery British weather



Before you can install a Swift turbine you need to get planning permission from the local council, although the good news is that councils are fond of eco-power and refusals are very unlikely. Planning rules may soon change so that turbines are classed in the same way as satellite dishes, so you won't need planning permission at all.



The turbine can be bolted to an external wall or mounted inside the roof space, and it can be attached to brick, masonry and even cavity walls. The combination of the Swift's design and its built-in damping means the turbine won't pass vibrations through the walls of your house.



As the wind rotates the turbine it generates electricity, but it's Direct Current (DC) rather than the Alternating Current (AC) used in domestic power supplies. This inverter box takes the DC current and converts it to AC so it's ready for use in your home.



The inverter connects directly to your house supply, but the Swift also needs this "hotbox", called the Electronics Control Unit or ECS. The ECS is the system's brain, which we're told contains all kinds of clever algorithms that maximise its efficiency no matter how hard the wind blows.



And here's the result: one laptop happily playing Charlie Brooker's Screen Wipe using nothing but wind power. You'll be pleased to know that this particular turbine's mass of wires and boxes is only for show: in normal installations, all the bits and bobs are hidden away.

# Power down

## Automate your home and cut those pricey household bills

**N**ow that your zero-power PC is up and running, why not set it up to look after your home? The Harmony suite (**www.simplyautomate.co.uk**) of home automation software may seem like an extreme technological extravagance, but it's simple to set up and could save you some serious cash in the long run.

Harmony utilises the X10 standard for transmitting data and controlling appliances via your existing electrical wiring. Normally this system requires the setting up of different codes for each appliance so that it can communicate with your PC, but with the Harmony suite all that is taken care of. Plug your PC into the computer interface module and it will communicate with any X10 module, positioned anywhere around the house along the same wires, all through a simple user interface.

What this means for the home user is the efficient use of appliances, lights, heating and cooling throughout the home depending on time of day, temperature and room occupancy. Yes, that's right, there's a motion detector extension that will turn the lights on automatically when you walk into a room. We're living in the future right now…

From the energy saving point of view, it can stop you having lights and heating on unnecessarily and save you the bother of having to worry about it yourself. Let's face it, everybody wants to save money, but most of us just can't be bothered to spend the time wandering around the house at night making sure every single light is off and every gadget isn't on standby. If your PCs happy doing it then let it, we say.

You can control your house's eco-friendly power source from your PC.

### Appliance Module £40
This is the basic unit for controlling appliances via your PC. It can handle anything up to 2,400W, so pretty much anything with a plug. It's simple to use, being literally plug and play via the Harmony automation software. You can get other specific lamp modules which are cheaper, but cannot cope with as much power. Appliances connected to these plugs can be triggered by set macros programmed into the software, or by other external sensors such as…

### Motion Detector £17
Link this little beauty up with an X10 transceiver module and you can efficiently control the lighting, or any other appliance in any area of your house. It can be set either to perform a set function – like turning off the lights when you leave a room – or to operate as a dark/light sensor. It can also trigger multiple events, like turning off all the appliances in a room as well as the lights when you head off to bed.

### Temperature Sensor £33
This unassuming little USB thang plugs direct your PC via the USB port. As well as simply monitoring ambient temperatures it will also trigger events depending on the sensor readings. This enables you to set up an efficient heating system as well as an efficient cooling system for those distant summer months. Link it up with the motion sensor to check if anyone's in and you'll be set up for some serious energy saving.

# Jolly green giants?

## Greenpeace names and shames the worst in e-waste

Greenpeace recently published a Guide to Greener Electronics detailing what companies were the worst offenders in the field of environmental electronics. The scores revolve around the different companies' commitments to waste disposal, but more importantly eradication of hazardous materials such as brominated flame retardants (BFRs) and polyvinyl chloride (PVC) in the production process.

Dell has come out at the top with its commitment to removing not only these chemicals but going even further and removing more than the six chemicals the Restriction of Hazardous Substances (RoHS) directive states. Zeina Alhajj, a representative from Greenpeace, told us that "Apple only came to us with the statement 'there is RoHS, we're going to comply with that'". The bare minimum? "Exactly," said Zeina.

The idea of the guide is not to give consumers a heads up on what products to buy as Zeina points out: "there are no 'green' products around to recommend… but the consumer has the biggest power as the buyer and the user to support companies that make commitments more than the others. This is where we recommend consumers to take a stand."

**GREEN**

1st Dell & Nokia
2nd HP
3rd Sony Ericsson
4th Samsung
5th Sony
6th LG Electronics
7th Panasonic
8th Toshiba
9th Fujitsu Siemens
10th Apple
11th Acer
12th Motorola
13th Lenovo

**MEAN**

13:54  N'pton  0
       Carl U  0

# Season's greetings

Dave James meets Miles Jacobson, Sports Interactive's Managing Director, as the latest *Football Manager* update prepares for kick-off

**PCFormat How how long did it take you to stop referring to *Football Manager* as *Champ Man* after the split from Eidos?**
**Miles Jacobson** Occasionally I still slip up, but we already had the name and were already calling it *Football Manager* when we were working on the final *Championship Manager*. It's *Football Manager* now though, and it's a better name!

**PCF How do you feel about it now?**
**MJ** We're happy working with SEGA and have been since the first day. We're making great games, which is the important thing, and it's the work that we put into the games that we're proud of, not the name we made. We're more concerned about making our games great.

**PCF With the 130-odd new features, how much have you had to go back and recode?**
**MJ** Everything in *FM*'s modular. If you think about the game like a jigsaw it's quite easy to take out a piece and slot in a new piece. Scouting is a new module; it's totally replaced the old system, and was written from scratch. We haven't had

to rewrite many sections, but we'd be stupid to because it's working really well. I can't really see us ever having to rewrite the whole game.

**PCF Have any of these new features been real pigs to slot in?**
**MJ** There are always teething problems with most new features. The new youth system was probably the hardest to test, because you've

got to test it over twenty-thirty seasons, it's not something you just see whether it works or not.

It took a long time to get right, but it's certainly there now. The level of players in the database throughout 30 season games is very good. The amount of players playing in certain positions is pretty much spot on. It was a painful few weeks though. Beyond that most of the

> ## "If it isn't broken there's no point in fixing it. I can't see us ever having to rewrite the whole game"
>
> **MILES JACOBSON   Managing Director, Sports Interactive**

stuff worked first time. That's the beauty of having an experienced team working on the game; they know what they're doing.

**PCF The affiliates feature was something requested by the community for a while; were there any other features that came straight from the community?**
**MJ** Lots and lots and lots of stuff has come from the community. Board takeovers, for example was from the community, clubs being able to build new stadiums, a lot of the UI improvements have come from the community as well. We're very much a community driven company, and because of the way we hold the feature meetings fans have just as much of a say as to what goes into the game as me or anyone else here at SI.

As Miles says, "[*FM2007*] is a massive step up" from *FM2006* and we look forward to getting our mitts on the final code. Check out the **blog.pcformat.co.uk** archive for the full, in-depth interview, and look out for what SI promises to be a different take on the demo soon. **PCF**

**You can now upload your own images for your squad-bothering alter-ego.**

**The *PES*-like spider graph can give you an overall view of a player's strengths.**

# reviews

## All the latest games, gear and apps

**71**

**Rock Xtreme CTX Pro T76**

## Our scoring system

**0-19%** Unusable or astoundingly rubbish
**20-49%** Largely not worth spending money on
**50-69%** Some decent features but uninspiring
**70-79%** Accomplished without the must-have factor
**80-89%** Outstanding. Awarded Top Gear or High Score
**90+** Exceptional. A *PCFormat* Gold Award winner

## Our key promises

**1. PCF has the most thorough reviews**
We've been reviewing kit and games for 14 years. With over 8,500 reviews written, we have the most talented, dedicated and authoritative teams in the business.

**2. Integrity is paramount**
We never trade pages for exclusives, or review games not signed off as finished by the publisher. Where we've looked at reference hardware, we'll make that clear in the review.

**3. The PCFormat Gold Award**
Only when a piece of equipment or game exceeds our expectations in terms of innovation, excellence and value for money does it get one of these coveted honours.

**4. High Score/Top Gear**
It's a misconception that only 90%+ is an essential purchase. Anything scoring 80% or higher is festooned with one of these, making it one of the month's most highly recommended.

**5. We want to know what you think**
We are PC fans writing for PC fans, so please share your thoughts on new stuff in our forum: **http://forum.pcformat.co.uk**

**gold**
**PCFormat**

**high score**
**PCFormat**

**top gear**
**PCFormat**

**66**

**WiFi Mobiles**

# PCFormat Experts

**JEREMY LAIRD**
This month El Chico Lairdorino gets to grips with the world of HD graphics cards and the first Blu-ray and HD-DVD laptops

**MOST WANTED**
A 70" HD televison

**ALAN DEXTER**
Exhausted himself trying to keep up with the fastest gaming laptop on the planet. And only wanted it for *WoW…*
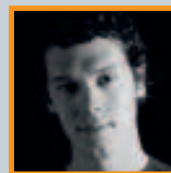
**MOST WANTED**
New running shoes

**AL BICKHAM**
Made an executive decision and avoided GPU benchmarking. So, decided to go and bench some serious PSUs instead.

**MOST WANTED**
Absolute power

**KIERON GILLEN**
Lizards are cool and big ones even more so, as our Kieron discovered this month in the pre-historic *ParaWorld*.

**MOST WANTED**
T-Rex DNA

**ALEC MEER**
'Why do they come to me to die?' Alec was heard mumbling this month, struggling to cope with the ghosts of *Defcon…*
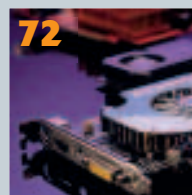
**MOST WANTED**
A lie-in

**MIKE CHANNELL**
Chauffeured Al to the concrete jungle of roundabouts that is Milton Keynes. All in the name of exhaustive PSU tests.

**MOST WANTED**
Concrete cows

**SUBSCRIBE NOW!**
Turn to page 134 and never miss an issue of *PCFormat* again!

# THIS MONTH

**92**
Joint Task Force

**98**
ParaWorld

**78**
Shuttle XPC

**80**
HD-DVD v Blu-ray

>> **HIGH DEF GRAPHICS**
**Media centre minefield**

**72**

High definition video is great but getting playback on your PC can be a nightmare because of the stringent rights management inherent with Blu-ray and HD DVD. Choosing the right media centre graphics card then is vital, but what boxes to tick? HDCP, HDMI, S-video?
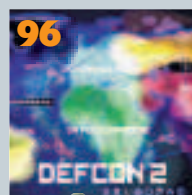
>> **DEFCON**
**One death's a tragedy…**

**96**

…but a million's a vaguely irritating statistic in this tense, involving multiplayer world-destroyer. The self-styled 'last of the bedroom programmers,' Introversion, brings us its latest project, full of gracefully arcing atomic weapons and genocide on an unprecedented scale. But has it made the nuclear holocaust fun at last?

>> **COMPANY OF HEROES**
**Do we need another hero?**

**100**

The over-saturated World War 2 strategy market gets another RTS to add to its bloated roster. Can Relic, the team behind such masterpieces as *Dawn of War* and *Homeworld* give the genre a shot in the arm? We've got a funny feeling you'll be reaching for that copy of *Saving Private Ryan* again after this…

# PLUS

# FOR MORE REVIEWS…

Check out the *PCF* blog, where we bring you the best-informed opinions of new releases even sooner these young internet upstarts we keep hearing about. Head over to **blog. pcformat.co.uk** for regular updates. On the blog this month, you'll find:

>> *FIFA 07* >> *Dark Messiah* >> The first Kentsfield quad core benchmarks

**ROUND-UP**

# VoIP a go-go

With WiFi hotspots dotting town centres up and down the UK, VoIP calling on the go has never been so easy. But do you really need your laptop and headset when WiFi mobiles promise so much, asks Tom Dennis

**J**ust over 12 months ago we were promised the future. Skype, enjoying its newfound glory, announced it was to revolutionise the mobile phone market. No longer would we poor punters have to chop and change contracts to suit our needs. Mobile VoIP would soon be upon us, and free communication on the go would be available to all.

A year down the line though, and it seems tomorrow's promises have been missed. Though community WiFi access has become reality for a few, VoIP calling to the majority still means a phone call through a PC. And while a headset may seem a small price to pay for free and accessible global communication, it's still not as familiar as calling up a contact on a single handset.

The answer lies in the networks. While satellite and antenna mast might be fine to boot our chatter from person to person, such technology costs. It costs your network provider to relay your calls and that is passed on to you, the consumer.

Yet the penetration of wireless broadband carrier signals in the last two years has put the jitters into traditional network providers. Copper phones lines and GSM are the past. WiFi is the future of telephony.

## HOTSPOT NETWORKS
In the US, AT&T Wireless, Verizon Wireless and Sprint are buying up access to a 3,300 hotspot network owned and run by Wayport. The hotspot company signed 'roaming' contracts with mobile phone networks in smart anticipation of mobile handsets with WiFi capabilities. And although network providers could end up losing revenue if WiFi users move away from traditional contracts in significant enough numbers, it's not something they're ignoring.

Dual chipset handsets remain out of reach at present. What's more, the technology needed for seamlessly switching from WiFi radio to traditional GSM network provider mid-call is in its infancy. So we're left with dedicated wireless WiFi in the interim.

On test here we have four very different models. None are meant to replace your traditional mobile handset, but they each enable roaming VoIP access and the same ease-of-use. Let the wireless war begin.

## HOW WE TESTED

The four phones on test here aren't going to completely replace your mobile just yet – only a dual-chipset phone, or the introduction of global Wi-Max, is going to manage that. However, get near a friendly hotspot, and you're laughing. Therefore, we assessed each phone on its capabilities as a wireless alternative to VoIP calling. While a headset and mic is fine for calls made from the comfort of your own home, for VoIP on the go, handsets are the only game in town.

As such, each phone was graded on its call quality, costs, ease-of-use and design. And whether Skype, Vonage or SIP-based, we've looked at how easy it is to dial up and chat using the familiar punch-the-button nature to which we've recently become accustomed.

## AIGuru S1 £70

**SkypeOut** 0.014p/minute UK landline, 0.14p/min UK mobiles  **Skype to Skype** Free

**Manufacturer** Asustek **Web** www.asus.com

The S1 initially seems promising. Compatible with the VoIP provider via 802.11b/g WiFi, once plugged into your PC the S1 taps into your Skype account and downloads your contacts, preferences, caller ID and other account data almost automatically.

Unfortunately, though, such promise is obliterated when you actually want to use it. Not only does it require a separate software install (Windows only) to make calls, including SkypeOut and SkypeIn, it also needs two free USB ports through which its dongle and cradle channel call data. True WiFi it's not, and while it does eventually work, the quality of the signal on the move is close to appalling.

**Wireless protocol**  WiFi 802.11b/g

**Battery life**  2.5 hours talk time

**Screen**  128x64 blue LCD screen

**Service support**  Skype

**52**% **PCF says…** "Less a WiFi phone and more an audio streaming device, but cheap and functional nonetheless."

## Edge-Core Skype WM4201 £170

**SkypeOut** 0.014p/minute UK landline, 0.14p/min UK mobiles  **Skype to Skype** Free

**Manufacturer** Edge-Core **Web** www.i-voip.co.uk

As a Skype-branded WiFi phone, the Edge-core certainly looks like another PC-tethered offering. The base unit cradles the phone nicely, which connects via a wireless dongle to your PC, and the design is clean if a little uncomfortable on the ear.

Although it ships with WMM (Wireless Multi Media), the phone's network settings are only reachable through its PC-enabled interface. So while SkypeOut and SkypeIn are each supported without the aid of a PC to dial into your account, it's redundant. Network scanning actions constantly update your connection preventing dropped calls mid-conversation. And although it can pick out hotspots relatively effectively, it remains a house-or-office-bound wireless Skype option rather than a true WiFi phone.

**Wireless protocol**  WiFi 802.11b/g

**Battery life**  4 hour talk time

**Screen**  128x160 backlit LED

**Service support**  Skype

**67**% **PCF says…** "Could easily replace your landline via SIP, but misses the point of a true WiFi handset."

## Starcom F1000 £150

**Manufacturer** UT Starcom  **Web** wwwi-voip.co.uk

It's fair to say that this Vonage unit has all the visual appeal of a mid-nineties Motorola. School children would laugh if you popped this out at a train station hotspot. The interface is a grey on orange LCD, and the keypad sticks and rocks in a truly unnerving way.

Yet for all its visual deficiencies, it is a true WiFi phone. The F1000 connects to your PC via USB and scans for your account details and settings.

Open access points are a cinch to make calls through, but WEP-enabled networks are a different story – though possible to connect to, the dreadful interface makes it almost impossible to enter a key, which means this isn't a phone for the local Starbuck's or hotel room call.

**Wireless protocol**  WiFi 802.11b

**Battery life**  4 hours talk time

**Screen**  128x64 mono LCD display

**Service support**  Vonage

**70**% **PCF says…** "Despite its dated looks the F1000 hints at the potential of true WiFi VoIP. Tragic interface, however."

## Turn over for the winner…

## WINNER!

### Starcom F3000 £200

**Call costs** Dependent on VoIP provider – Skype, SIP, SDP, RTP, DHCP and TFTP compatible

**Manufacturer** UT Starcom

Not only does the F3000 look like it could replace your existing mobile, but SIP support means 'roaming' between different access points and SSID is a very real possibility. The upshot of this means that while being a long way from a true dual-chipset device, it does enable an element of roaming without dropping calls, and best of all, it requires no PC link. It's also a very straightforward set-up, which scans for the nearest signal and is as easy to link to WEP and WPA connections as any open network. SIP functionality takes it a step further than the other phones here, enabling SMS-like messaging to both other SIP-enabled devices and GSM handsets.

**Wireless protocol** WiFi 802.11b/g

**Battery life** 3 hours talk time

**Screen** 128x160 Colour display

**Service support** SIP-based

**88%** **PCF says...** "The closest thing to true mobile VoIP, and as easy to use and acceptable to look at as any GSM mobile."

**top gear PCFormat**

## "It does enable an element of roaming without dropping calls, and best of all, it requires no PC link"

## It's good to talk

### Different VoIP services work in different ways, but which suits your needs?

VoIP works by converting your voice into a digital signal, compressing it and encoding it before breaking it into data packets that are sent over the internet. There are several standard codecs designed to transmit VoIP packages: ITU-T H.323 (known as H.323 for short), Media Gateway Control Protocol (MGCP) and the IETF Session Initiation Protocol known as SIP. But there are also proprietary VoIP protocols, like Minet, that Mitel Networks uses on its range of VoIP equipment and the peer-to-peer software-based Skype protocol.

Because Skype is based on a peer-to-peer system of data packaging, its call charges are lower than SIP-based VoIP. However, SIP is one of the simplest and by far the most popular VoIP service, and is used by Vonage and other service providers as a realistic replacement to traditional landlines. What's more, because its packaging codecs are more widely used, inter-connectivity between SIP devices, traditional mobiles and messenger services are achievable, strongly hinting at the way true WiFi VoIP mobiles will go.

Our advice, as ever, is to look carefully at your particular needs. Many businesses are beginning to opt for contract packages like Vonage for its 'unlimited use' deals, while software-based VoIP calls such as Skype are fantastic value for international calls and 'free' calls to other Skype users.

**"This machine will happily take on most desktop processors"**

PORTABLE POWERHOUSE

# Xtreme CTX Pro T76

Imagine a mobile processor faster than an FX-62 working alongside a 7900GTX, and you'll get an idea of this monster's power…

**Price** £1,749  **Manufacturer** Rock Direct  **Web** www.rockdirect.com

**J**ust in case you've been hiding under your metaphorical rock of choice lately, Intel is back on top. Forget the Pentium 4 – Intel certainly hopes you do – and instead turn your attention to its lovechild of the Pentium M and Pentium D: Core 2 Duo. The mobile rendition of the chip is mildly less pant wetting, but it's still the ultimate choice for mobile junkies, and slots straight into nominally older Core Duo laptops, too.

Not a company to beat around the bush when it comes to new tech, Rock has gone straight for the jugular and used the fastest rendition of the Core 2 Duo in this Xtreme CTX Pro. At 2.33GHz, this chip will happily take on most desktop processors and leave them clutching their caches in pain. Intel claims a 20% performance improvement over a similarly clocked Core Duo, and our benchmarks can't argue. Rock has married this processor with 1GB of DDR2 667MHz memory for a powerful core specification, and the 7,200rpm hard drive continues this attention to performance detail.

## PIXEL SHIFTER

CPU aside, the large footprint means that there is enough room for NVIDIA's GeForce Go7900 as well, complete with no less than 512MB of memory.

This machine was built for gaming, and it's up to the task. The *3DMark06* score of 4,845 is impressive from a machine that can be thrown over your shoulder (providing you're a gym-goer), and you can expect over 100fps in *Quake IV* too. The screen's default resolution of 1,680x1,050 may not be supported by every game out there, but the graphics engine can throw most titles to this panel without a whimper.

We do have a couple of reservations, mind. The silver finish exudes spray-painted plastic tackiness rather than exclusive class. Our unit's keyboard was also unresponsive when tasked, but neither of these detract from the performance on offer.

This machine isn't cheap. Sure, £1,749 will buy you a second-hand car with a big boot, as well as a similarly powered desktop system to put into it, but if you're in the market for a portable gaming system, the Rock CTX Pro T76 defines the standard.  **Alan Dexter**

top gear PCFormat

**CPU**  Intel Core 2 Duo T7600, 2.33GHz, 4MB L2 Cache

**GPU**  NVIDIA GeForce Go 7900 GTX 512MB

**Screen**  17" WSXGA+ X-Glass TFT screen (1680 x 1050)

**Memory**  1GB DDR2 667MHz RAM

**Audio**  7.1 SRS WOW Surround

**Storage**  100GB 7200rpm Hard Drive /DVD-RW +/-

**Entertainment**  DVB-TV Tuner

**Networking**  Intel Pro 802.11a/b/g WLAN

**Software**  Roxio Creator 7, Napster, MSWorks8, MS Office 2003 trial

**Collect & Return Warranty**  Three year

**87**% **PCF says…** "Gaze past the standard exterior, and you'll discover a beast of a machine."

| BENCH MARKS | 3DMARK06 | SM2.0 | HDR/ SM3.0 | CPU SCORE | SANDRA 2007 CPU Int | SANDRA 2007 Multi-media | SANDRA 2007 RAM Bandwidth | HALF LIFE 2 E1 1,680x1,050 x4 x8 | DOOM 3 1,280 x 1,024, x4 x8 |
|---|---|---|---|---|---|---|---|---|---|
| CTX PRO T76 | 4,845 | 1,961 | 1,910 | 1,952 | 21,429 | 12,7594 | 3,824 | 83 | 132.4 |

More benchmarks and details can be found on your DVD

# High def demons

Content protection, codec conundrums and ever-shrinking form factors. Life for the media PC graphics card is trickier than ever. Jeremy Laird sorts the HD champs from the SD chumps…

## HOW WE TESTED
### Champs or chumps?

Balanced, highly flexible performance for both 3D and 2D applications from a compact, low-noise board. That's the ideal media centre graphics card in our view.

Performance-wise, we chose a trio of 3D benchmarks: *3DMark* provides a quick and simple snapshot of 3D capabilities, *Half-Life 2: Episode One* (with HDR disabled) is a relatively undemanding test, while *FEAR* is the ultimate shader-packed nightmare for any video card.

In terms of settings, we selected 1,280 x 1,024 with 4x anisotropic filtering as reasonable compromise for an all-purpose media machine. As for video decode performance, we assessed hardware acceleration using a high-bitrate 1080p video file encoded in the most demanding codec in Christendom: H.264.

But what about cooling solutions and noise? None of the cards in this group test are flagship pixel pushers with full scale leaf blowers. Hence, we've applied a three-point scoring system: the full trio is awarded for a fully silent card with passive cooling, a card receives two points for a virtually inaudible active solution and there's just one miserable point for a card with a slightly whiny fan.

**R**emember your first experience of high definition video? We do. And if you're anything like us, life has been hollow and unsatisfying ever since. Because HD video makes even the finest standard definition digital TV or superbit DVD content look like soft and blurry bunkum. Once you've seen the eye-popping detail on offer from a high quality 1080p video stream, there's no going back. So much for that expensive and carefully constructed DVD collection.

Still, the good news is that the HD revolution has finally arrived in Blighty. HD broadcast TV is available from both Sky and Telewest (though not yet compatible with PC playback) and HD-DVD and Blu-ray drives and content might just be available to buy in the UK by the time you read these words. But the bad news is that HD video and the PC are barely on speaking terms. Unlike standard definition video, watching premium HD content on your PC is an extremely tricky task thanks to the stringent performance and digital rights management requirements of HD-DVD and Blu-ray discs. Unlike DVDs, a drive and a disc isn't enough – if you haven't got the right supporting kit, playback is downright impossible.

All of which makes specifying the right video card when building an HD-capable media PC more crucial than ever. The first checkbox to tick, of course, is support for the increasingly unpopular HDCP content protection platform. Although many expect HDCP to be cracked and rendered impotent sooner rather than later, there's no avoiding the fact that it's a must if you want to guarantee your PC is capable of legally decoding next-gen video discs.

The next problem your media PC in general, and its video card in particular, must tangle with is the incredibly varied and demanding nature of HD video content. Unlike DVDs, which are all encoded in the computationally undemanding MPEG2 video codec and at a rather pitiful maximum resolution of 720x576, HD-DVD and Blu-ray discs support a plethora of advanced and processor-intensive codecs, along with resolutions up to 1,920x1,080. Think about it – that's fully five times DVD resolution. So, a video card that provides efficient hardware decode assist of the most demanding codecs, such as H.264 and VC-1, could be the difference between a silky smooth HD cinema experience and a jerky, frustrating slide show.

Currently, both ATI and NVIDIA make bold claims about the ability of their graphics hardware to handle HD video content. But they also take intriguingly different approaches. NVIDIA has been building its PureVideo dedicated video decode engine into its GeForce chips since the arrival of the 6800 back in 2004. After an inauspicious start (it was broken in those first 6800 chips), PureVideo now supports the full range of modern video codecs, including H.264 and VC-1.

But what about ATI's hardware video decoding? Instead of building a dedicated engine into its chips, ATI's Avivo decode technology makes use of the 3D pixel shader pipeline. Consequently, while all NVIDIA's GPUs deliver similar video performance (core clockspeed is the only differentiator), the more pixel shaders an ATI chip offers, the greater the decode assist on offer. And remember, a Radeon X1300 sports just four pixel shaders compared with fully 48 for a Radeon X1900 XT. It's also worth noting that ATI recently announced that it was planning to follow NVIDIA's lead and build a dedicated decode engine into future chips.

The final piece of the HD puzzle is the video-out interface. First, a word of warning. Many video cards claim to be HDTV ready. But make no mistake, the quality of the S-video output on any PC graphics card is painfully poor. Therefore, apart from the

odd specialised card that provides full component-out analogue capability, a digital interface is absolutely essential. Many older HDTVs often sport DVI sockets, but the latest sets almost always have HDMI ports. And a card with HDMI is what you should be aiming for, because that also guarantees support for the aforementioned HDCP content protection system (though HDCP is also compatible with DVI interfaces, see right).

Of course, 2D video decoding prowess isn't the only important issue for a media PC graphics card. Size, power consumption and noise and heat dissipation are all more critical in a compact and living room-friendly system than a typical ATX tower rig. Likewise, although pushing 3D rendered pixels at nose bleed-inducing resolutions such as 1,920 x 1,200 isn't a priority for a media PC, we reckon it's reasonable to demand that a flexible media centre video card be capable of handling most games at the more modest Xbox 360-matching 720p standard. ↘

## DVI, HDMI AND HDCP
### An interface and content protection alphabet soup

We'll wager you're already very familiar with the terms DVI, HDMI and HDCP. And you probably reckon you have a good idea what they mean. But do you? The misconceptions surrounding this trio of digital devices are manifold. So, let's start with the oldest and best known of the bunch, DVI. The Digital Video Interface comes in several flavours and supports both digital and analogue video signals. A so-called single-link DVI interface supports resolutions up to 1,920 x 1,200 in 32-bit colour, while a dual-link DVI port is required to drive ultra high resolutions such as 2,560 x 1,600 (think 30-inch Dell 3007WFP). So far, so good.

More recently, a new digital display interface known as HDMI or High-Definition Multimedia Interface has begun appearing on displays. The most obvious difference between HDMI and DVI is the socket – HDMI is much smaller and neater. This reflects the fact that HDMI is a multi-purpose interface designed for TVs and set top boxes as much as PCs and laptops. This wider remit also explains the addition of audio capabilities. HDMI supports up to eight channels of uncompressed digital audio, enabling a complete digital audio-visual signal to be piped down a single cable. It's also worth noting that the video component of the HDMI signal is identical to DVI – a simple adapter can transform a DVI socket to HDMI and vice versa (excluding audio, of course). For now, the current type-A HDMI definition is limited to resolutions of 1,920 x 1,200, but a dual-link type-B version supporting higher resolutions has been ratified.

Which just leaves HDCP, or High Bandwidth Content Protection. In simple terms it's a hardware digital rights management technology developed by Intel which encrypts the output of a playback device in order to prevent the digital signal from being captured and copied. Consequently, for a PC to be HDCP compliant, both your video card and display device must have HDCP encryption chips installed. But here's where it gets a bit tricky. All devices with HDMI 1.1 or later interfaces include full HDCP support. But HDCP compliance is also possible via a DVI interface – many of Dell's latest range of flat panel displays support HDCP over DVI, for instance.

## "HD-DVD and Blu-ray drives and content might just be available to buy in the UK by the time you read these words"

## MSI NX7600GT Diamond Plus £140

Objectivity is all very well. But we couldn't help having an inkling that NVIDIA's mid-range 7600 GT chipset might be the weapon of choice for a media PC. After all, it sports an extremely healthy grand total of 12 pixel pipelines. However, it's also a relatively low-power chipset that doesn't require a cooling solution big enough to blow out the back of your PC or a supplementary six-pin power cable.

And so it proved with MSI's NX7600GT. Granted, it's not a passively cooled card. But it is near-silent during desktop work and video playback and doesn't make much fuss under a heavy 3D load. Even better, it has enough pixel pushing poke to handle the likes of *FEAR* at 1,280 x 1,024. OK, this card can't match the 24-pipe majesty of the impressively passive 24-pipe powerhouse that is the MSI 7900 GT. And you won't be playing the latest games with oodles of anti-aliasing. But on a big screen TV or painted across a wall courtesy of an HD projector it will certainly deliver enough performance at 720p to give an Xbox 360 something to think about.

And that's not all. Thanks to that dedicated PureVideo 2D engine and the highest core clockspeed on test (560MHz), this card is the most effective HD video decoding tool on test. It turned in an extremely impressive 34 per cent CPU utilisation result in our H.264 benchmark. That's precisely half the CPU time required to decode our test file in pure software mode.

Bung in the NX7600GT's fantastic feature set, which includes both a dual-link DVI socket, an HDMI port complete with HDCP and video-in capabilities and you have every hard working IT hack's group test honey: a no-contest winner.

**gold**
**PCFormat**

## "The all-season, every reason media centre solution"

| GPU | NVIDIA GeForce 7600GT |
|---|---|
| **Memory** | 256MB |
| **Core speed** | 560MHz |
| **RAM speed** | 1.4GHz |
| **Pixel pipelines** | 12 |
| **API** | DX9.0c |
| **Shader model** | 3.0 |
| **AV-out** | DVI (dual-link), HDMI, S-video |

**93**% **PCF says...** "Great video decode and 3D performance and a full-on HD feature set. Nice."

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## Gigabyte NX76G256H-RH £100

**top gear PCFormat**

If it's proof you're after that the competition in the media PC graphics market is awfully tough, look no further than this well-specified card from Gigabyte. After all, the on-paper feature set includes HDMI connectivity with HDCP support, a totally silent cooling solution and a relatively compact form factor. Oh, and NVIDIA's 12-pixel-pipe 7600 GS chipset that comes complete with five vertex units, 256MB of memory and full Shader Model 3 functionality. And yet it still only squeaks a podium position.

The main problem is the modest 400MHz core and 800MHz memory clockspeeds. Not only is 3D performance consequently rather pedestrian, but it also can't quite match the awesome H.264 decode assist capabilities of MSI's quicker-clocked 7600 GT-based board.

| GPU | NVIDIA GeForce 7600 GS |
|---|---|
| **Memory** | 256MB |
| **Core speed** | 400MHz |
| **RAM speed** | 800MHz |
| **Pixel pipelines** | 12 |
| **API** | DX9.0c |
| **Shader model** | 3.0 |
| **AV-out** | HDMI, DVI, S-video |

**82**% **PCF says...** "Silent and fully HD-ready. Only ordinary 3D performance disappoints."

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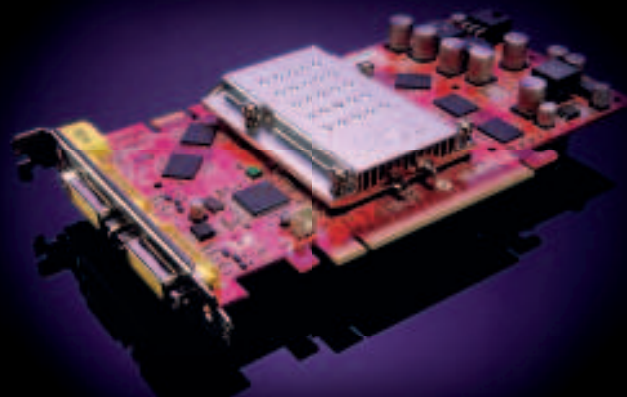
## MSI NX7900GT Passive £225

Back in the bad old days of the leaf-blowing GeForce 5800 Ultra, the idea of a passively cooled card with a core clockspeed of 450MHz and 24 pixel pipelines was pure fantasy. But not in 2006. Based on the powerful yet parsimonious GeForce 7900 GT chipset, the NX7900GT combines near-flagship levels of single-card rendering performance with completely silent operation. The result is easily the best 3D performance here along with solid H.264 hardware decode assist. A pair wired up in SLI mode would make for a fab living room render rig.

But not the ideal media PC. For starters, HDMI connectivity and HDCP support are conspicuous by their absence. And the requirement for a six-pin supplementary power cable cements this card's status as the gas guzzler of the group.

| GPU | NVIDIA GeForce 7900 GT |
|---|---|
| **Memory** | 256MB |
| **Core speed** | 450MHz |
| **RAM speed** | 1.3GHz |
| **Pixel pipelines** | 24 |
| **API** | DX9.0c |
| **Shader model** | 3.0 |
| **AV-out** | 2x DVI, S-video |

**79**% **PCF says...** "Massive 3D performance, but lacks a full HD video feature set."
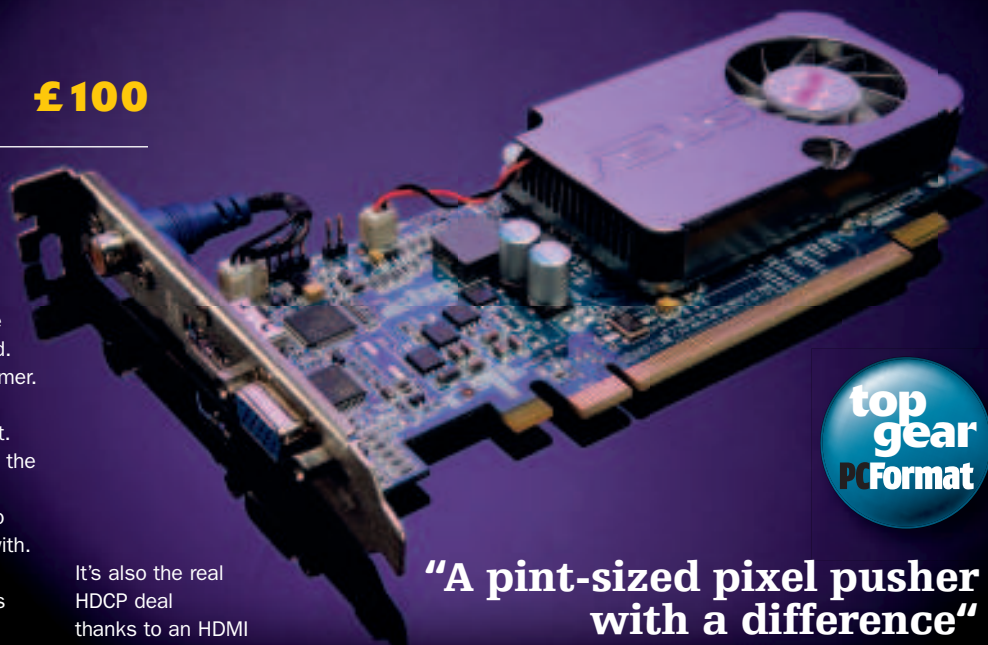
## Asus EAX1600 Pro HDMI

**£100**

**Manufacturer** Asus  **Web** www.asus.com

If placing MSI's NX7600GT in pole position in this test was a no brainer, the fight for second spot spoils was much, much closer. Several cards made convincing cases, not least MSI's passively cooled 7900 GT. But it's this quirky little Radeon X1600 board from Asus that gets the nod.

By many metrics, it's a pretty mediocre performer. Under load during 3D rendering it's a whiny little beast. And that's despite its modest gaming grunt. You can forget playing recent games at 720p with the image quality set anywhere near maximum. Even *Half-Life 2: Episode One* with HDR disabled and no anti-aliasing was nearly more than it could cope with. And while we're slipping the knife in, it would be remiss not to point out that the EAX1600 Pro's hardware video decode performance was less than stellar. It only shaved off 13%, in terms of CPU utilisation, compared with a software-only solution.

All of which will leave you wondering what exactly the EAX1600 Pro actually has going for it. For starters, it's the most compact card on test, a proper half height board that comes complete with a pair of backing plates and should fit into almost any system. What's more, with core and memory clockspeeds of just 400MHz and 800MHz respectively, it won't stress out your system's PSU.

It's also the real HDCP deal thanks to an HDMI port. But what really separates this graphics card from the rest of the pixel-pushers in this test is its SPDIF-in port. It enables users to directly connect the SPDIF-out port from their PC for a simple solution to the problem of enabling a full audio-visual stream.

*top gear PCFormat*

## "A pint-sized pixel pusher with a difference"

| | |
|---|---|
| **GPU** | ATI Radeon X1600 Pro |
| **Memory** | 256MB |
| **Core speed** | 400MHz |
| **RAM speed** | 800MHz |
| **Pixel pipelines** | 4 (12 shader units) |
| **API** | DX9.0c |
| **Shader model** | 3.0 |
| **AV-out** | HDMI (DVI via adapter), VGA |

**83**% **PCF says...** "A pedestrian performer, but extremely compact and ready for HD action."

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## MSI NX7300GT

**£55**
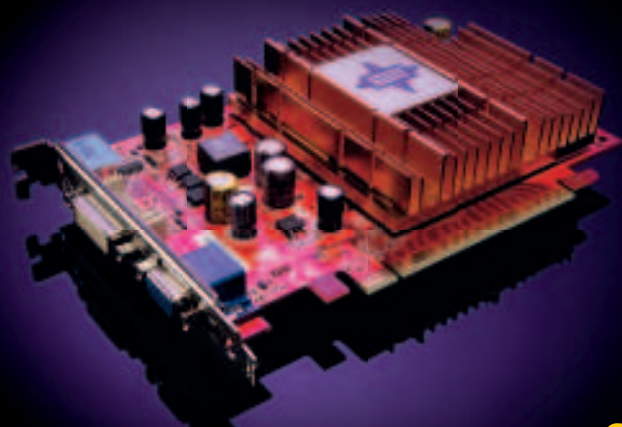
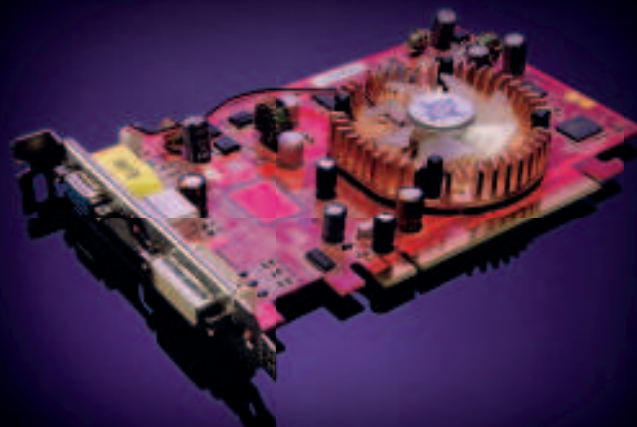**Manufacturer** MSI  **Web** www.msicomputer.co.uk

Thanks to the relentless pace of technological development in PC components, fleshing out a future-proof system is an almost impossible task. However, it is possible to avoid building a rig that's over the hill even before it's out of the box.

With that in mind, this GeForce 7300 GS-based board is difficult to recommend. For starters, the 3D horsepower on offer is so limited, you'd be well advised to consider it a 2D-only card. What's more, the lack of HDMI connectivity or HDCP encryption support means playback of HD-DVD and Blu-ray video discs is a non-starter. And that's a shame, because the

GeForce 7300's PureVideo 2D engine is capable of reasonable levels of hardware decode assist, as the 56 per cent CPU utilisation result in our H.264 benchmarks proves.

| | |
|---|---|
| **GPU** | NVIDIA GeForce 7300 GT |
| **Memory** | 256MB |
| **Core speed** | 350MHz |
| **RAM speed** | 666MHz |
| **Pixel pipelines** | 4 |
| **API** | DX9.0c |
| **Shader Model** | 3.0 |
| **AV-out** | DVI, VGA, S-video |

**60**% **PCF says...** "Worth a look for a low-spec SD system. HD fans steer well clear."

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## MSI RX1300Pro

**£75**

**Manufacturer** MSI  **Web** www.msicomputer.co.uk

Pitiful 3D performance and non-existent hardware video decode assist. Not a great result for this Radeon X1300 Pro powered card, then. In fairness, the X1300 chipset does support decode assist for important codecs such as VC-1 and H.264. But driver and application gremlins prevented this card from demonstrating its 2D decode prowess.

However, given the Asus X1600's unspectacular showing in our H.264 benchmark, you'd be brave to put any money on this card delivering any acceleration worth worrying about. But then it hardly matters since it offers neither enough 3D performance to cope

with anything apart from ancient games nor HDMI or HDCP support for next generation video discs. Unless you plan on building a media centre designed for purely low definition video playback, steer clear.

| | |
|---|---|
| **GPU** | ATI Radeon X1300 Pro |
| **Memory** | 256MB |
| **Core speed** | 600MHz |
| **RAM speed** | 800MHz |
| **Pixel pipelines** | 4 |
| **API** | DX9.0c |
| **Shader model** | 3.0 |
| **AV-out** | DVI, VGA, S-video |

**50**% **PCF says...** "Expensive, and slow. Impossible to recommend."

# Decode dedication

## NVIDIA's dedicated decode engine takes on ATI's pixel shader power

When NVIDIA originally launched the PureVideo dedicated 2D decode engine in 2004, we were really rather excited. It promised flexible, powerful and programmable decode support for almost any video codec.

But then we discovered that the first version of the PureVideo engine was utterly borked. Not good. To make matters worse, NVIDIA chose to stick its fingers in its ears and sing "la-la-la-la" every time anyone cared to mention the problem.

However, we're magnanimous, even munificent, sorts here on *PCF*. So, we're happy to give NVIDIA full marks for turning PureVideo around. As our benchmarks show, given enough clockspeed the PureVideo engine is capable of almost cutting CPU loads in half when decoding high definition H.264 content. Crucially, that level of hardware assist could be enough to prevent you from needing a CPU upgrade to smoothly decode HD-DVD discs.

But what of ATI's decode capabilities? Well, our test results indicate that ATI's pixel shader-based hardware assist approach isn't terribly effective. And we suspect ATI is well aware of this. That's why the company is rumoured to be inserting its Xilleon dedicated decode engine into upcoming GPUs – more or less the same approach NVIDIA has taken with PureVideo.

As for 3D performance, there are no real surprises here. The more powerful the chipset, the better the benchmark results. Suffice to say, we reckon the MSI 7600 GT's numbers are good enough for the sort of casual big-screen gaming larks that your average media PC needs to cope with.

| BENCH MARKS | 3DMARK06 | FEAR | HALF-LIFE 2: EPISODE ONE | H.264 DECODE CPU UTILISATION |
|---|---|---|---|---|
| Settings | Default (pts) | 1,280x1,024, 4x Aniso (fps) | 1,280x1,024, 4x Aniso (fps) | 1,080p, PowerDVD 7 |
| MSI NX7600GT DIAMOND PLUS | 3,129 | 54 | 88 | Software 73%, Hardware 36% |
| ASUS EAX1600 PRO HDMI | 1,709 | 25 | 41 | Software 73%, Hardware 60% |
| GIGABYTE NX76G256H-RH | 2,184 | 36 | 60 | Software 73%, Hardware 45% |
| MSI NX7900GT PASSIVE | 4,205 | 77 | 123 | Software 73%, Hardware 40% |
| MSI NX7300GT | 1,566 | 25 | 40 | Software 73%, Hardware 56% |
| MSI RX1300PRO | 1,383 | 17 | 40 | Software 73%, Hardware N/A |

More benchmarks and details can be found on your DVD

# Conclusion

So, you've diligently hacked your way through the last few pages of typically flowery *PCF* prose. And you've noticed a very particular bent to this media centre graphics card round-up. We've placed an awful lot of emphasis on HD video decode capabilities, support for next generation HD video discs and HD-friendly video output options. In short, it's been five pages of shameless HD obsessing.

But our reasoning is simple. Firstly, if you're not worried about HD content, buying a video card for a media centre PC is straightforward. Yes, you need to consider issues such as form factor, pricing and 3D performance. But it ain't rocket science, folks.

However, the availability of HD content in the UK is about to explode. And picking out a properly HD-capable pixel pusher is a much trickier proposition. For that reason, the three cards that lack HDMI or HDCP support must fall first. Granted, the silent power of the passively cooled 7900 GT is impressive. But without support for next generation video discs, it's a clear case of no-touchy.

Of the remaining HDMI-equipped trio, MSI's NX7600GT Diamond Plus is tough to beat. For starters, it's slim, compact and efficient. And although it can't boast a passive cooling solution, it is comfortably quiet enough to do duty in a living room PC. Likewise, it's a capable 3D card that makes a good fist of rendering the latest and most demanding games, provided you keep the resolution pegged around 720p. But most of all, courtesy of dual-link DVI, HDCP, HDMI and the most effective hardware decode assist performance in town, it packs by far the best HD feature set and capabilities. And all in a £140 package. **PCF**

"MSI's NX7600GT Diamond Plus is tough to beat. For starters, it's slim, compact and efficient"

**Performance might not be high-end, but the Shuttle does offer value for money.**

## BUDGET MIDGET

# Shuttle XPC SK22G2

One good reason to opt for an AM2-based system. Take it from us, they're few and far between…

**Price** £160 **Manufacturer** Shuttle **Web** www.aria.co.uk

**G**iven the current landscape, it's difficult to recommend any system that houses an AM2 processor. Clearly, this is unfair and unscientific; AM2 still has much to recommend it, and at the time of writing the new 5200+ is unproved. But Core 2 Duo has stolen our hearts, and while *PCF* is beginning to sound like a stuck record in this regard, we say it with very good reason. The fact is, AMD's dual-core AM2 CPUs aren't bad at all. In fact, in many cases, they're very good, with DDR2 support and decent overall performance. It's just that standing in the shadow of Intel's new überchip just isn't the place to get noticed.

The XPC SK22G2, Shuttle's latest AM2-friendly small form-factor chassis, will still make for a good PC. The standard prerequisites are all here; a PCI-E x16 slot, DDR2 800MHz support and space enough for a pair of hard drives and an optical drive in its gizzards.

### "The games performance on the Chrome GPU is shocking"

However, this Shuttle differs from the majority of its sparrow-weight brethren by housing onboard graphics – specifically, the VIA Chrome9 chipset. Don't get too excited – the chipset isn't all that, half inching up to 256MB of system memory, so you'll want a minimum of 1GB DDR800 to keep the machine happy.

## SHORT ON SPACE

The games performance on the Chrome GPU is absolutely shocking: 1fps in both *F.E.A.R.* and *Half Life 2: Episode 1*, and *3DMark06* wouldn't even run. There's a PCI-Express slot in there for better graphics performance, but it's situated so close to the chassis wall that there's no room for a double-width card, so you'll be looking at a 7900GT or nothing. However, with one of today's midrangers installed, you can expect reasonable gaming performance, though it would struggle to drive a display significantly bigger than 1,280x1,024, unfortunately.

You can build an above-average system using this Shuttle, but it'll never be truly high-end. However, at £160, this is one of the cheapest Shuttles ever released. With a decent AM2 CPU, a gigabyte of 800MHz DDR2 and a reasonable midrange, you're looking at an outlay of around £600 all-in. You can build better Conroe-based performance for that money, but not in as svelte a chassis as this. **Al Bickham**

| CPU Socket | AMD Athlon 64 X2 AM2 |
| --- | --- |
| Core logic | VIA K8M890CE |
| Memory | DDR2 667/800, up to 4GB |
| Graphics | VIA Chrome9 HC / 1 x PCI-E x16 |
| Audio | Realtek 5.1 Surround |
| Storage | 2 x SATA |
| IO | 6 x USB 2.0, 1 x Firewire, 1 x mini Firewire |
| Networking | Gigabit LAN |
| Dimensions | 20x30x18.5cm |
| PSU | 200W |

| BENCH MARKS | HALF LIFE 2 Episode 1 1,280x1,024 x2 x4 | F.E.A.R. 1,280x1,960 x2 x4 | 3DMARK06 1,280x1,024 | SANDRA CPU Dhrystone | SANDRA CPU Whetstone | SANDRA RAM Bandwidth Int Buffered | SANDRA RAM Bandwidth Float Buffered |
| --- | --- | --- | --- | --- | --- | --- | --- |
| XPC SK22G2 | 1FPS | 1FPS | N/A | 1,7298 MIPS | 1,4349 MFLOPS | 1,7787 MB/S | 4,696 MB/S |
| Benchmarks run using an AMD 4800+ AM2 CPU and 1GB Super Talent DDR2 800MHz | | | | | | | |

**72%** **PCF says…** "Ideal media centre or midrange PC on a budget, but don't expect too much."

# OrigenAE X10 Chassis

OrigenAE's designer HTPC range puts the elegance back into home computing

**Price** £210   **Manufacturer** OrigenAE   **Web** www.origenae.com

**R**equiring the manipulation of six tiny screws to get inside, it's clear that OrigenAE is aiming its X range at HTPC purists who prefer to build and go, rather than tinker with their PC over time. That said, it's far from being a barebones kit, with no power supply included, despite the staggeringly high price.

OrigenAE has gone with a brushed aluminium construction, meaning it's a lot lighter than its steel counterparts. A minimalist front bezel hides everything except an illuminated power button and two-line VFD screen, tucking the ports and floppy/card reader slot away behind an aluminium plate. The optical drive is also nicely hidden; a chunky replacement fascia, complete with DVD logo, is supplied. Also included is a Media Center-compatible infrared remote control, making this a great case for those after true HTPC capabilities within Windows.

## MEDIA VENTURES

Unfortunately, OrigenAE isn't as hot on internal design. Inside, you're greeted with a simplistic maze of cookie-cutter fan holes, a single, non-removable drive bay and a large corridor of aluminium, designed to extract hot air from the awkwardly front-mounted power supply. We can't see any benefit to this, as no space is saved. It's also almost impossible to install a power supply without unused cables swathing your motherboard due to the cramped layout.

The hard drive bay is non-removable, and while complete drive isolation is advertised, the included rubber grommets failed to combat vibration. The designers have also chosen to use two single-speed 60mm exhaust fans rather than the 120mm norm, and these produce a distinct whine.

We'd like to see room for more than a single hard drive, fewer expansion slots (is seven really necessary?) and a more standard power supply design. If it ain't broke… **James De Vile**

| | |
|---|---|
| **Material** | 8mm Aluminium Front Panel, 3mm Side Panels |
| **Expansion slots** | 7 |
| **Motherboard Support** | ATX, Micro-ATX |
| **Drive Bays** | 1x external 5.25", 1x external 3.5", 1x internal 3.5" |
| **WxHxD:** | 434x135x452mm |
| **Weight** | 7Kg |
| **Power supply** | ATX (not included) |
| **VFD Display** | 2 x 16 characters, full MCE compatibility |
| **Extras** | Microsoft MCE Remote |

**49**% **PCF says…** "Looks great, but its beauty is only skin deep."

# Antec Fusion chassis

The original enthusiast case manufacturer displays outstanding attention to detail

**Price** £125   **Manufacturer** Antec   **Web** www.antec.com

**M**arking a departure from its previous HTPC efforts, Antec has finally produced a case that doesn't scream 'I'm a PC!' quite so loudly. However, if you did have any intentions of hiding the fact that there's a PC hanging out with your hi-fi, you're out of luck, thanks to the exposed USB and audio ports.

There's unfortunately no remote control in this package, but at least when you do get up off the sofa to adjust the volume it's a pleasant experience thanks to the pleasingly tactile amplifier dial.

## NEAT FREAK

Antec's reasons for only supporting MicroATX boards in this chassis become clear when you look at the superbly planned interior; each component has its own section, meaning that while the bundled PSU isn't modular, excess cables are confined tidily to a partition.

What makes the Fusion stand out is the attention to detail. The chassis is solid steel; sharp edges are rounded off, and Antec's used white activity LEDs, a welcome departure from the clichéd blue.

The case is supplied with dual variable-speed 120mm fans, able to push more air at slower speeds, and covers for unused fan mounts. This allows for a wide choice of cooling combinations. Drive bays are removable and mounted using vibration-eliminating silicone spacers, and reusable cable ties come pre-fitted. All this makes the case a pleasure to build in, and it wasn't long before our system was humming away quietly.

At their lowest speed, the fans and power supply were barely audible from more than a metre away, and the hard drive dampers stopped drive-graunch. Stepping up the speed increased the volume, but even at full speed the Antec was quiet, fitting in perfectly with our Hi-Fi system. **James De Vile**

| | |
|---|---|
| **Material** | Aluminium and steel |
| **Expansion Slots** | Four |
| **Motherboard support** | Micro-ATX |
| **Drive bays** | 1 x external 5.25", 1x external 3.5", 2x internal 3.5" |
| **WxHxD** | 432x483x133mm |
| **Weight** | 9.6Kg |
| **Power supply** | 320w ATX 2.01 |
| **VFD display** | 2 x 16 characters, full MCE compatibility |
| **Extras** | Fan covers |

**92**% **PCF says…** "A great mix of style and substance, at a reasonable price."

# High definition derby

## Toshiba Qosmio G30-163

**Price** £2,099  **Manufacturer** Toshiba  **Web** www.toshiba.co.uk

## V

## Sony VGN-AR11S

**Price** £2,002  **Manufacturer** Sony  **Web** www.sony.co.uk

It's the fight we've all been waiting for – Blu-ray versus HD DVD on the PC. Jeremy Laird is ringside…

**F**eel like you've grown old waiting for HD DVD and Blu-ray to turn up? You're in good company. In the time it's taken these long-awaited high definition video discs to materialise, the entire team at *PCF* has made significant progress towards that final, icy oblivion. However, courtesy of a pair of 17-inch notebooks from Toshiba and Sony, representing HD DVD and Blu-ray respectively, and one of the very first movie titles released on both formats (that'll be the Denzel Washington vehicle and social realist dissertation on modern law enforcement in the US that is *Training Day*) we're ready to cheat death for another day and pass on our initial impressions. Let battle commence.

Of course, the basic tech specs of each platform aren't exactly breaking news. But now that discs and drives are finally here, this stuff's no longer theoretical. It really counts. First up is storage capacity. HD DVD tops out at 15GB per recording layer, while Blu-ray ups the ante with 25GB per layer. Of course, it's not quite as simple as that, not least because Toshiba, which heads

> **"This stuff's no longer theoretical. It really counts"**

The Toshiba Qosmio G30 has better screen quailty with superior contrast.

*top gear* **PCFormat**
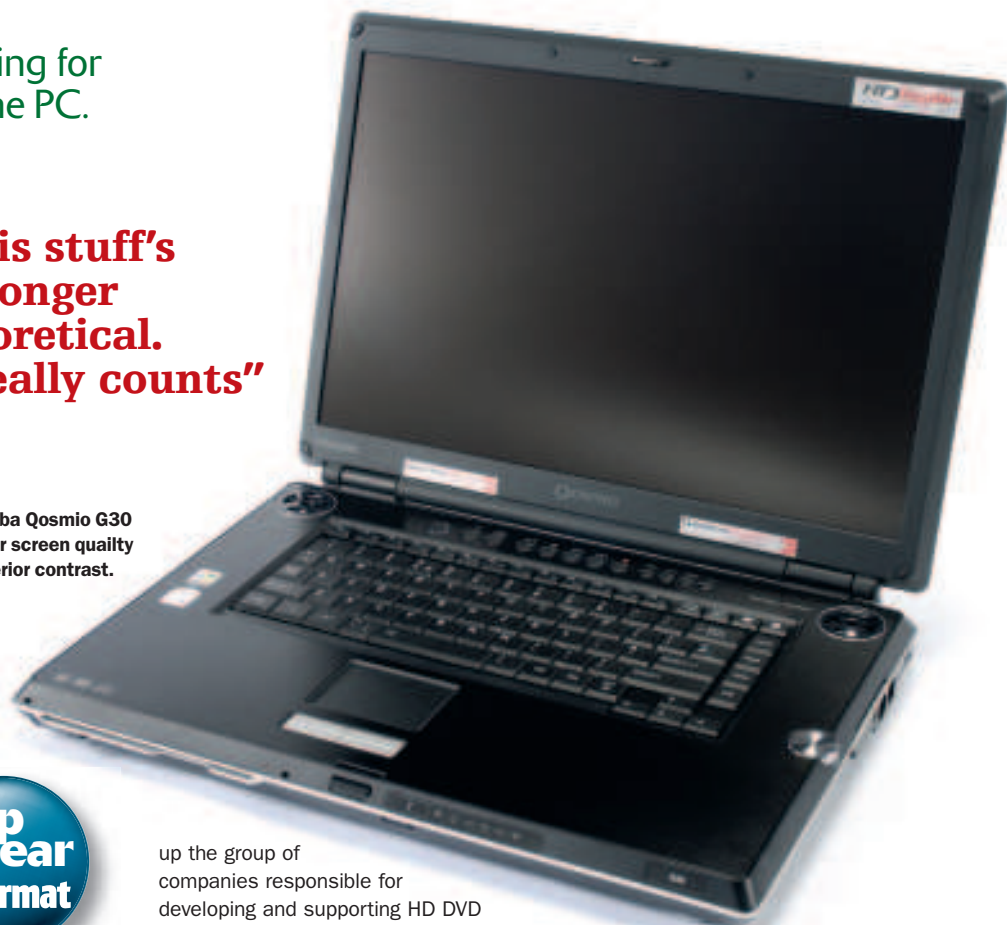
up the group of companies responsible for developing and supporting HD DVD including Intel, HP and Microsoft, has announced that triple-layer 45GB discs will be available towards the end of '06 and will be compatible with existing players. On paper, Sony's Blu-ray technology still holds an advantage with 50GB dual-layer discs. However, the development of dual-layer Blu-ray technology has not gone smoothly. To date, every Blu-ray movie on the market has shipped on a single-layer 25GB disc.

And that could be crucial when you factor in the next high def diversion on the comparative spec list: video codecs.

In theory, video codec comparisons are a non-issue with both technologies supporting MPEG2, VC-1 and H.264 (also known as MPEG4-AVC). In reality, however, such is the fierceness of the fight for ownership of the dominant HD platform that some odd decisions have been made. For example, the first Sony-sponsored Blu-ray movies for the US market have been encoded in the rather ancient and flatulent MPEG2 codec. The short story is that VC-1 is a Microsoft-derived technology and H.264 is closely

## DRM destruction

### How long can HD DVD and Blu-ray discs hold off the hordes of hackers?

**Both Blu-ray and HD DVD discs are crock-full of content protection technology. Although the most widely publicised (or should that be vilified?) digital rights management feature is HDCP (the technology designed to protect digital content as is travels from playback devices to displays), it's the Advanced Access Content System, or AACS, that really stands between hackers and an HD free-for-all.**

**In simple terms, AACS is the beefed-up successor to CCS as used on many standard-definition DVD discs, and is designed to be both more hack-resistant thanks to measures such as dynamic encryption keys and more flexible for users by allowing for controlled copies to be made.**

**Exactly how long AACS will stand up to the inevitable script-kiddie onslaught is a matter of much debate. But it's worth noting that the man responsible for cracking CSS, Norwegian Jon Lech Johansen, has predicted AACS will be toppled by spring 2007 at the latest.**

A scene from the HD DVD edition of Denzel Washington boreathon *Training Day*…

…and here's it on Blu-ray. Very similar, save for greater colour vibrancy.

associated with Toshiba. For a proud company like Sony, using either of those codecs would therefore represent a serious loss of face. All current HD DVD titles on sale in the US, by contrast, are encoded in VC-1 (Microsoft's WMV9 by another name). As *PCF* went to press, it wasn't clear what codecs would be used for discs of either format sold in the UK.

By most other technical metrics, there's little to choose between the two. Both support HD resolutions up to 1080p, require AACS and HDCP digital content protection support (to which Sony adds BD+ encryption) and largely the same multi-channel high-definition audio standards.

But if that's how HD DVD and Blu-ray stack up on paper, how do they compare rendered across an unforgiving liquid crystal array? The simple answer is that there's surprisingly little in it. And that's particularly intriguing when you realise that the HD DVD transfer of *Training Day* is actually larger at 20GB than the 16GB Blu-ray print despite the fact that VC-1 delivers a much higher compression ratio and that both discs sport the same on-disc extras.

In absolute terms, neither quite scales the heights of visual majesty you might expect from 1080p content. Just as early DVD transfers were pretty patchy, it will take time for film studios to really get to grips with the new formats. But don't take our word for it –

## "Neither quite scales the heights of visual majesty you might expect"

hop on over to the *PCFormat* blog and have a sniff of our exclusive comparison screenshots.

As for the relative merits of the laptops themselves, well, the screen quality nod goes to the Qosmio G30 thanks to superior contrast and viewing angles, while the feature set spoils also go to the big T. However, the Qosmio's worryingly high 78% CPU utilisation during HD DVD playback reflected our early review sample's inability to correctly enable hardware VC-1 decode support. And don't forget, the Sony is capable of both reading and writing

**top gear PCFormat**
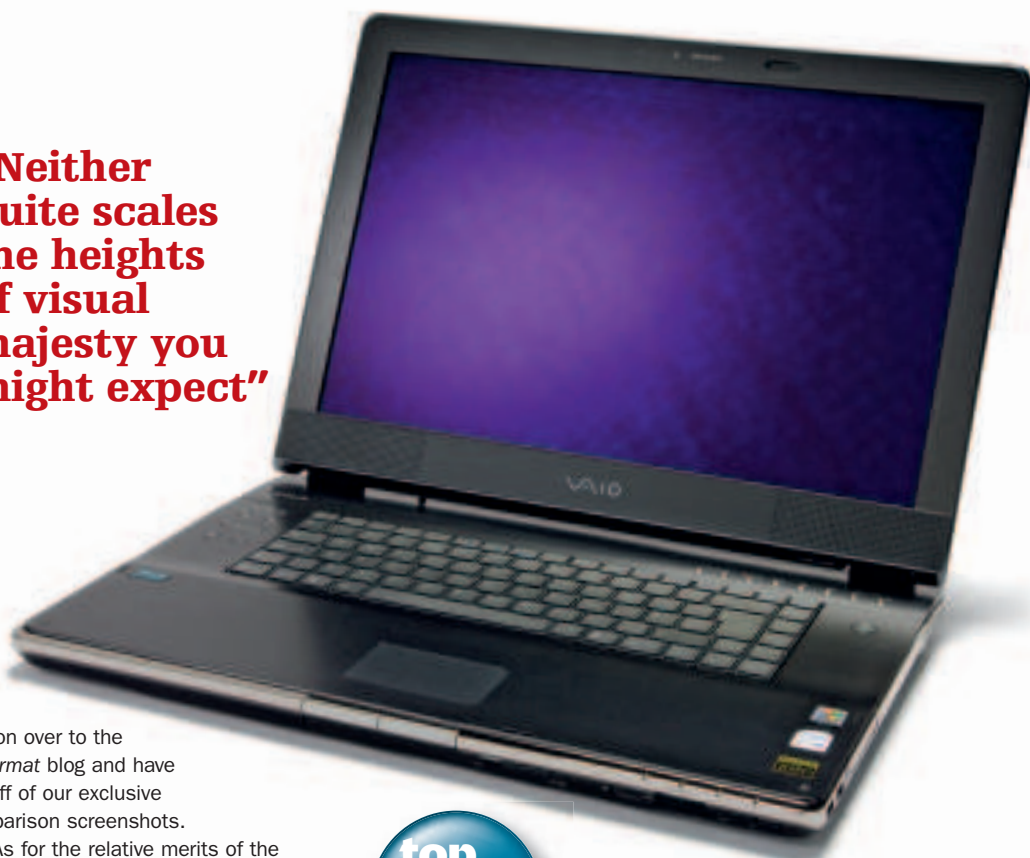
The Sony VGN-AR11S, above, is capable of reading and writing Blu-ray discs.

Blu-ray discs. The Qosmio's drive cannot write to HD DVDs.

Still, both units do include HDCP compliant HDMI ports. But be warned, HD video playback is disabled when using the VGA output, so an HDCP-enabled external display is a must for either laptop.

Ultimately, however, neither system is really bona fide enthusiast material. They're too expensive and inflexible. If it's HD thrills on your PC you're after, we recommend you hold out for the arrival of desktop IDE drives later this year. **PCF**

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## Toshiba Qosmio G30-163

**Screen** 17-inch 1,920 x 1,200 native resolution

**CPU** Core Duo T2500 2GHz

**Memory** 1GB

**Chipset** Intel 945GM

**Graphics** NVIDIA GeForce Go 7600 256MB

**Hard drive** 2 x 120GB

**Optical drive** HD DVD read-only, DVD+/- and CD read and write

**Video outputs** HDMI, VGA

**TV tuner** Hybrid analogue / DVB-T

**Operating system** Microsoft Windows XP Media Center

### HD DVD

**Test disc** Training Day, Warner Bros

**Test disc capacity** Dual-layer 30GB

**Test disc video codec** VC-1

**Supported video codecs** MPEG2, VC-1, H.264

**Test disc quoted video bitrate** 23Mb/sec

**Audio** Dolby Digital Plus

**Blank HD media burn test** N/A

**Typical CPU utilisation during test disc playback** 78%

**80**% **PCF says...** "Beautiful build, great screen. But huge, heavy and painfully expensive."

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## Sony VGN-AR11S

**Screen** 17-inch 1,920 x 1,200 native resolution

**CPU** Core Duo T2500 2GHz

**Memory** 1GB

**Chipset** Intel 945GM

**Graphics** NVIDIA GeForce Go 7600 256MB

**Hard drive** 2 x 100GB

**Optical drive** Reads and writes Blu-ray, DVD+/- and CD

**Video outputs** HDMI, VGA, S-video

**TV tuner** Hybrid analogue / DVB-T

**Operating system** Microsoft Windows XP Media Center

### Blu-ray

**Test disc** Training Day, Warner Bros

**Test disc capacity** Single-layer 25GB

**Test disc video codec** MPEG2

**Supported video codecs** MPEG2, VC-1, H.264

**Test disc quoted video bitrate** 30Mb/sec

**Audio** Dolby Digital

**Blank HD media burn test** BD-RE, 1h 18mins to burn 9.8GB of data

**Typical CPU utilisation during test disc playback** 49%

**85**% **PCF says...** "Sleeker, slimmer and boasts Blu-ray recording capability."

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# UK HD Movie Releases

## BLU-RAY RELEASES

**Fox, 14th November:**
*Kingdom of Heaven Director's Cut*
*Fantastic Four*
*Behind Enemy Lines*
*Transporter*
*League of Extraordinary Gentlemen*
*The Omen: 666*
*Kiss of the Dragon*
*Speed*

**Warner, late 2006, 10 titles including:**
*Firewall and Syriana*
*Full Metal Jacket*
*Training Day*
*Space Cowboys*

**Paramount, end November:**
*Mission Impossible 3*

**Sony, 16th October:**
*Hitch*
*The Exorcism of Emily Rose*
*RV*
*The Fifth Element*
*Hostel*
*A Knight's Tale*
*S.W.A.T.*
*Tears of the Sun*

## HD DVD RELEASES

**Warner, late 2006, 15 titles including:**
*Rumor Has It*
*Constantine*
*Goodfellas*
*Troy*
*Lethal Weapon*

**Studio Canal, November:**
*Basic Instinct*
*Elephant Man*
*Fog (John Carpenter version)*
*King Kong (1976)*
*La Haine*
*The Pianist*
*Rambo, Rambo II and Rambo III*
*Total Recall*

**Paramount and Universal, November, 25 titles including:**
*Apollo 13*
*Jarhead*
*Mission Impossible 3*

**2 Entertain, November**
*BBC Planet Earth*

**Pathe distribution, November:**
*Renaissance*

## PERFECT PANEL?

# Asus PW-201

## Wide, bright and shiny as a penny. So what's the catch?

**Price** £400  **Manufacturer** Asus  **Web** www.asus.com

**W**e'll admit that it's hard to imagine anyone being disappointed with this swish-looking ingénue couched supine on his/her desktop. It's a pretty thing, cast in glossy black with a heavy, solid base and an entirely adjustable tilt-and-rise stand made of the most sturdy metals. As monitors go, it's looks are up there at the classy end, and its crisp panel performance will suit gamers and movie-lovers alike.

### MOVIE MAGIC

Indeed, it'd make a decent media centre display, providing you're not sat too far from the screen itself. Not a perfect one, mind – there's no HDCP compliance, no dual-link DVI or HDMI inputs and it can't scale to 1,920x1,080, so as far as signal input goes, it's very much this-generation technology. If you're looking for a panel that's ready to tickle your optical nerve with Blu-ray or HD-DVD content, then look elsewhere, and raise your sights to the 24" category.

And the Asus NW201 does require a little bit of tweaking to get the best out of it. While the stock contrast levels are good, there's a noticeable blue-grey cast to the image which needs a little fine-tuning to shift, and it's present across all the preset modes – Scenery, Standard, Theatre, Game

and Night View. However, its games performance is very decent – across its 16:10 wide-aspect display and at the native resolution of 1,680x1,050, games look fantastic, and there's no obvious ghosting to speak of.

The other extras are very hit-and-miss – the tilting built-in webcam is a nice touch, and perfectly positioned above the panel, but the speakers – just like all integral monitor speakers – are utter chuff, and should only be used in an emergency.

On the whole, it's a very competent, attractive display, but £400 is a bit steep for what is, after all, merely a 20" LCD monitor. For the same outlay, you can net a panel with all the things that this fellow is missing – like the NEC 20WGX2 (*PCF191*, 90%), which also offers breathtaking image quality.         **Al Bickham**

| | |
|---|---|
| **Screen diagonal** | 20" |
| **Native resolution** | 1,680x1,050 |
| **Aspect ratio** | 16:10 |
| **Contrast ratio** | 800:1 |
| **Brightness** | 350 CD/m² |
| **Extras** | Speakers, webcam |
| **Input** | DVI, VGA, Component, RCA, Audio, USB2.0 |

**79**% **PCF says…** "A good panel, but it's pricy, and the speakers are vile."

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# MediaMan HVX-3500

## And on the 4,305th day, God created those expensive hard drive media players

**Price** £126-£302  **Manufacturer** MediaMan  **Web** www.mediaman.com

**H**ere's a brief insight into the *PCFormat* reviewing experience: we're given the MediaMan to look at, its key feature being that it's a hard drive in a box that can play illegally downloaded video files. (Well, it doesn't support DRM'd downloads from the iTunes or Windows media stores, but it does support DIVX.)

*PCF* turns it on. *PCF* pauses. *PCF* asks "does anyone have any illegal video files?" Heads shake guiltily, eyes flicking towards security cameras that aren't there, save for a passing freelancer. He's nervous. Is this a test? A trap? "I, er, think I've got an episode of *Doctor Who* on my laptop," he mumbles. Pause. "Which one?" "That one where he fights the devil in space." Brows furrow, and a half-hour debate on the merits of said episode ensues. Nothing is achieved for a while.

Three hours later, and we've watched the Doctor shout at the devil every which way we can – over DVI, composite and component, at 480 through 1080, zoomed and letterbox. No-one likes the episode any more. But we do quite like the MediaMan, though we've scoffed at its lack of support for WMV or HD video. We've had

fun turning its fan off and seeing if it'll overheat. It steadfastly refused, even after several hours of playback at room temperature.

### DEF JAM

We've been bemused by its pricing (£126 for a hard drive-less model, a reasonable £190 for 160GB, up to £302 for 500GB). We've admired the intuitive menu system and become slightly annoyed at the language it uses to fool you into thinking it's a high-def player, when all it does it interpolate SD video up to higher resolutions for HDTVs. Still, it's in the higher echelons of the hard drive players we've dabbled with.         **Alec Meer**

| | |
|---|---|
| **Video outputs** | Composite, Y/Pb/Pr component, s-video, DVI |
| **Audio output** | Digital coaxial, digital optical, 5.1 & stereo analogue |
| **Video formats** | MPEG-1 (AVI, MPG), MPEG-2 (AVI, VOB), ISO, IFO, MPEG-4 (AVI, DIVX 3-5, XVID), JPEG |
| **Audio formats** | WAV, MP3, MPEG-4, WMA, OGG, AC3, DTS |
| **Interface** | USB 2.0 |
| **Dimensions** | 62x196x155m, 1Kg (without HDD) |

**78**% **PCF says…** "Lacking in HD functions, but it's a fine SD player."

# Pocket money pages

## SUB-£100 GOODIES FOR THE BARGAIN HUNTER



## Trust 8-in-1 Accessory pack for iPod

### Everything your Essex-white music provider could ever need

**Price** £30   **Manufacturer** Trust   **Web** trust.com

**C**orrect us if we're wrong, but isn't the iPod's diminutive size pretty much its prime selling point? Did it strike no-one at Trust that this selection of accessories – packaged in a particularly bulky carrying case – might just defeat the object of Apple's world-straddlingly successful portable music player somewhat?

It's not all bad news. The accessory pack itself isn't too heavy, and the selection of goodies lurking inside is generally of fairly high quality. The headphones are of the 'dangle unobtrusively from your ear' ilk, but they're undeniably comfortable with it. Even more importantly, they also kick out a respectable amount of bass – something the original Apple lugplugs couldn't be accused of. Their case is strengthened further by the pack's handy headphone splitter, and there's a car charger and a cleaning cloth in there too. Oh, and a world-ready travelling wall-wart *[Even I had to Google it – Ed]*, which somehow counts as three of the eight items in the pack.

**70%** **PCF says...** "8-in-1 is a misnomer, but there are useful bits aplenty here."

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### I Springs

**Price** £6   **Manufacturer** Tangle Tamers
**Web** www.tangletamers.com

What could be more comfortable than a pair of earphones that rub against your face while you're walking? That's right! Smothering those very cables with a tightly wound spring, designed to stop your precious buds from tangling up. It works, we're not denying that, but so does hanging up your headphones like a good boy scout would.

All we can really see these springs doing is scratching your MP3 player up, irritating your face, and making you look like a prize dork. At least you can now dangle "tags, bangles, charms and logos" from your earphones. That part has us totally sold, oviously.

**51%** **PCF says...** "This widget works, but it's a bit pointless."

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### ATMT HD160

**Price** £90   **Manufacturer** ATMT
**Web** www.atmtgroup.co.uk

Sometimes we're rather quick to dismiss gadgets which, outwardly, are a little on the cheap or tacky side. This tiny hard drive, though, gave us instant feelings of paternal joy that cut straight through that thick film of hard-won journalistic cynicism. It's like a little kitten. Even if you've developed an intense dislike for cats and their selfish, heartless ways, when that tiny bundle of fur runs at you, you can't help but fall in love. Although 20GB might not satisfy everyone's media transporting needs, the price is right for such a slight device, and you'll soon wonder how you got by without one in your pocket.

**82%** **PCF says...** "The embodiment of a neat gadget. Buy it now."

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### Tatung M100

**Price** £22 **Manufacturer** Tatung
**Web** www.tatung.co.uk

We'd written a whole review of this MP3 player before even looking at the price. Within, we slated it for its confusing design, rattling case and the difficulty we had in getting the USB cable into its port. But then we had to delete all that, because at a shred over £20, you're not going to get much better. There's a perfectly readable colour OLED screen that'll draw admiring glances in the pub, a built-in battery, a reasonable 512MB capacity, and a microphone for voice recordings. Oh, and it's even possible to play videos. Once again, folks, may we reiterate: This is £20 of cheap, tacky awesome. You want one.

**88%** **PCF says...** "So cheap it's almost disposable: a winner."

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### MicroRiver MiniSecure 512MB

**Price** TBC   **Manufacturer** MicroRiver
**Web** www.microriver.com†

The fact that our soft, childlike fingers were gored while hastily ripping open the MiniSecure's blister pack was the first indication of its high-security nature. The second was the obvious gimmick here, the fingerprint scanner. Plugging this in and setting up the pre-installed software let you slide your still-bleeding finger over the scanner for a slew of purposes. It's not just file encryption – MicroRiver has covered everything from secret *IE* favourites, autologin of favourite web sites, and even a fingerprint lock which disables the keyboard and mouse. Useful, if a little deadly.

**83%** **PCF says...** ..."A solid step into biometrics. Worth a look."

# Fang gamepad

## Barking mad, but has no bite

**Price** £30  **Manufacturer** Zboard  **Web** www.zboard.com

**A** **couple of months ago** we looked at the Zboard (*PCF191*, 78%), a dedicated gaming keyboard whose oh-so-clever name probably works a lot better when said in a thick American twang. The Fang, powered by the same FPS-bothering technology, is its one-handed little brother, but we're struggling to tell if it's more than just a gimmick.

Sure, you can use it with either hand, and all of the buttons are placed within the reach of any human boasting the common five-digits-per-hand configuration. But those same buttons are soft to the point of being spongy, not the sort of firm, tactile response we're used to when ploughing through hordes of on-rushing polygonal enemies, and this clearly takes a while to get used to. The Fang's other problem is that most bog-standard keyboard's buttons are more responsive and predictable than the squishy keys on offer here, so why would most hardened gamers make the switch to the Fang in the first place?

**48**% **PCF says...** "Like using a keyboard to play an FPS in a peat bog. Soft."

## Chilly Vent LUX

**gold** PCFormat

**Price** TBC  **Manufacturer** Asus
**Web** www.asus.co.uk

The packaging claims that this is a 'charming looking' case fan. We beg to differ, unless, by 'charming', Asus means 'boasts an eye-bleeding colour clash'.

The eye-watering bright green fan aside, this does at least have a number of significant improvements over similar coolers. The CPU contact plate is noticeably larger than normal, and the heat sink has been expanded along with it, which leads to improved cooling. The bracketing is pretty much standard AMD cooler fare, but this does of course mean it's easy to install, and in terms of volume, how does a mere 25dB sound? Pretty quiet, actually.

**91**% **PCF says...** "Pug-ugly neon it may be, but it'll cool any rig."

## Apple Bluetooth Mighty Mouse

**Price** £50  **Manufacturer** Apple
**Web** www.apple.com

It's easy to spot Apple zealots in a crowd. They're the ones smashing the right edges of their mice in a vain attempt to get them to register a single right-click. The Mighty Mouse's buttonless design was lauded by all who saw it, of course, but those stuck with using it soon lost patience. With this long awaited Bluetooth version, Apple had a chance to correct the faults of the original, but all it's really done is to pull the squeaker's tail off. The trackball on top is novel, though, and the battery life is reasonable, but - we wouldn't recommending this for serious gaming.

**61**% **PCF says...** "Please. Register. My. Right. Button. Click."

## Snappy Face Recogniser

**Price** £50  **Manufacturer** Widget UK
**Web** www.widget.co.uk

Peer, if you will, into the security methods of tomorrow. What do you see? A box inviting you to 'gain access to your computer using your face', of course. That's the way forward. And so we have the Snappy, £50 worth of webcam and mildly annoying software. The face recognition aspect works, and you may well enjoy locking your peers out of your den of electronic iniquity for anything up to three hours, but then the painful video effects of the three screen savers will become too much, and your embarrassment about the low quality of the webcam sensor will overcome you.

**48**% **PCF says...** "Put your face away. You won't need it."

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# Long
## term test

### RATINGS BEYOND THE WARRANTY

### Creative Zen Micro 512MB

**C**reative builds nice looking products, but I think it's fair to say that it doesn't always build the sturdiest gizmos on the market. As an ungainly headphone-clad lummox, I frequently manage to tug my MP3 player of choice out of my pocket and onto whatever hard surface I happen to be standing on.

After three mildly jarring drops, the Zen – which I should point out boasts impressive battery life, a decent screen and all – started to pull apart at the very seams. Five drops in – I told you I'm a genetically clumsy oaf – and the first batch of tape was applied to seal up the unit's by now completely split left edge, and soon enough the whole thing needed to be held together artificially with large quantities of weapons-grade adhesive tape.

All was well for a while, and the player, despite its laughable outward appearance, soldiered gutsily on for a while. But it didn't last. After a few more months of near-constant use, the software went on the fritz, and started locking up whenever I so much as tried to move the cursor left, which, as you might imagine, created a unique and irritating new set of problems. The MP3 player's actual physical workings still seem in relatively good nick, though so maybe Creative's problems only really lie in flimsy casing design – or, of course, clumsy customers. I hope it's the latter.  Alec Meer

### Tell us yours...

Send us a 200 word review of long treasured kit and if we print it, you'll receive a rugged, long lasting PNY Outdoor Attache 512MB USB memory stick. Mail your reviews to **pcfmail@futurenet.co.uk.**

# Back-up software

There's more than one way to skin a cat… and, indeed, save your data from ultimate loss, says Richard Cobbett

**T**his is the part of the review where we wax lyrical about the importance of backing up your data. We wave our fingers piously, talking about how terrible you'll feel when it all goes up in a blaze of broken bits and damaged data, and the importance of… well, all the rest of it. In practice, we all know that most people don't actually bother. Backing up is a 'tomorrow' job – something to be done on a day that isn't today, and one that – to use the technical expression – is a complete pain in the arse. You end up buried in back-up media, the process is slow and boring, and you can guarantee you won't be able to find the necessary file in the end

anyway. It's no wonder that most people simply don't bother – even if the result of a crash is as horrible as all the usual finger-waggling would imply.

So this time, we're taking a different tack. There's no winner for this round-up – instead, we're going to show you four individually terrific, but very different ways of keeping your data safe. Use one. Use two. Use all four, and you'll be protected from anything. Or alternatively, just zoom in tight on the one that works the way you do, not the way you know you probably should. That way, there's more of a chance that you'll be able to keep up with your backups, in a form that you actually find useful.

## BACKUP/IMAGING

# Acronis True Image Home

A jack of all trades, and master of your disks

**Price** £35 **Publisher** Acronis **Web** www.acronis.com

**T**here are two basic ways to protect your data: backing up and imaging. In practice, most software that does either will handle the function perfectly well, essentially making a compressed copy of your data. The difference comes when restoring. A backup typically gives you access to your files and data, letting you pluck files and settings back out of the ether, while an image takes a complete copy of the entire disc, ready to dump back on to your system at a moment's notice. The obvious benefit is that you can drop a copy of Windows itself back on to your disk in the event of trouble, and be up and running almost immediately.

### SECURE SYSTEMS

*Acronis* handles both these tasks, and throws in a few extras. Starting at the beginning, it slips in before Windows loads, making it possible to restore your system even if the entire OS comes crashing down. It can back up either your entire drive, or simply files and folders – including or excluding system files, hidden files, or junk files – and

*The Acronis Secure Zone keeps part of your drive locked out to the rest of the world, reserved exclusively for backups.*
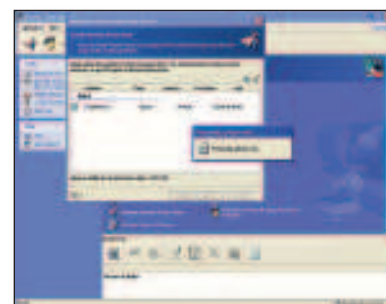
save it out to any part of the disk. It can also create a special partition on your drive that remains inaccessible to any other programs, ensuring you don't accidentally wipe your backups.

You cannot, however, automatically transfer your backups off-site. To use the cloning part of the software, you'll need multiple drives but these are cheap enough these days.

Online excluded, there's not a lot more that you could ask of a back-up tool, and unlike many, a 15-day demo is available to try out.

*"There's not a lot more that you could ask of a back-up tool"*
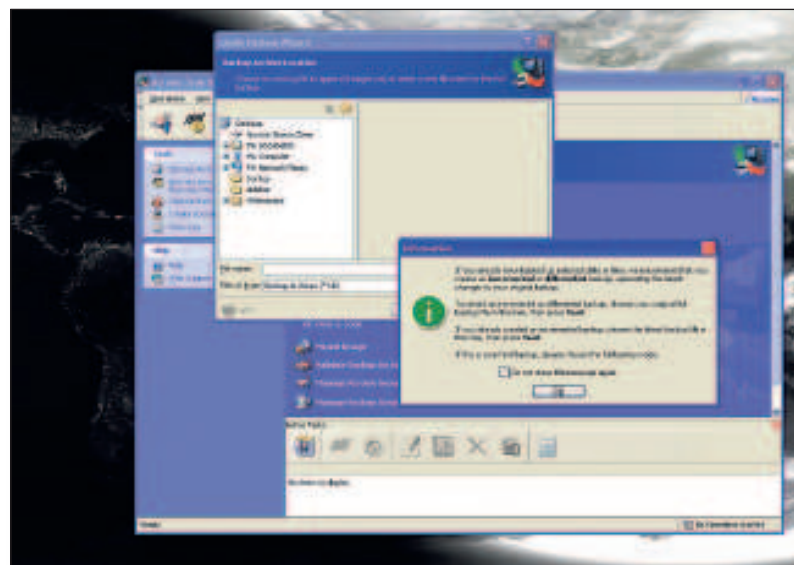
Incremental backups only copy across any files that have changed or been added since the last update, keeping the process short and simple.

**Needs** P4/Athlon CPU, 64MB RAM, 100MB HD

**Wants** Windows XP, 512MB RAM, multiple hard drives

gold
**PCFormat**

**92**% **PCF says…** "An all-in-one back-up tool suitable for every occasion."
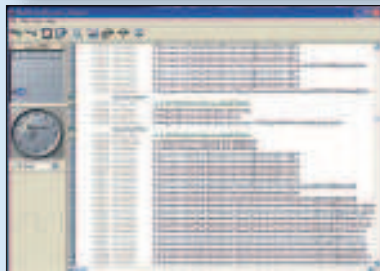
## TIME MACHINE

# Norton GoBack 4

## Dive through the mists of time

**Price** £30   **Publisher** Symantec   **Web** www.symantec.com

**T**his isn't quite a back-up utility. If your hard drive crashes, so will your data. However, in most cases, that's not the cause of data loss – it's deleting the wrong file or overwriting the wrong thing. *GoBack* turns your drive into a time machine, capable of rewinding and restoring your system. Windows XP offers something similar in the form of System Restore, but that's a broadsword compared to *GoBack*'s scalpel. With this, as well as resetting your whole system, you can dive into the archives and pull individual files out, or undo very specific changes.

The cost for this is a fair chunk of hard drive space – 8GB is recommended – although with modern drives, this is hardly a major issue. And ideally, you'll want to combine this backup with a separate method for looking after your files as they stand at the time, in case the worst does happen and your whole computer gets stolen or spontaneously combusts.

**Needs** Windows 98, 200MB of space

**Wants** Windows XP, 8GB free space

**90%** **PCF says...** "*GoBack* is the perfect way to undo your mistakes, but only within reason."

## ONLINE BACKUP

# Strongspace

## Trust your backups to the power

**Price** $8-$290 per month   **Publisher** Joyent   **Web** www.strongspace.com

**O**nline backups tend to follow a certain pattern – a web-based interface, handling individual files and groups of files rather than performing automated backups. Amongst the many available are AOL's *XDrive* (**www.xdrive.com**) and the more multimedia-focused *MediaMax* (**www.mediamax.com**). The benefits are many: automated backups that survive even if your house falls down, and often copies of earlier versions – although of course, you're entrusting your data to a third party.

*Strongspace* kicks off at $8 for 4GB of space – a bit over the odds, but there are additional benefits. You can access your files via the SFTP client of your choice rather than using the web for everything, and set up unlimited download accounts that give other people access to only the directories you specify. This gives you plenty of freedom to chop and change your software across platforms, rather than being limited to one tool. On a technical level, you can also hook in via *rsynch* and other utilities – helpful for website owners, even if just to take a backup of your blog.

**Needs** Web connection, broadband

**Wants** SFTP client

**80%** **PCF says...** "A very flexible and reliable service for more demanding online backup users."
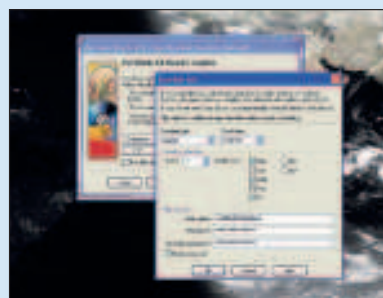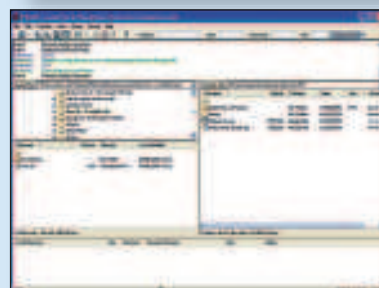
## COMPRESSION/BACKUP

# WinZip 10 Professional

## That's right. *WinZip*. It does more than squash your stuff

**Price** $49.95 (online purchase)   **Publisher** WinZip   **Web** www.winzip.com

**W**e wouldn't hold *WinZip*'s back-up features up as a direct competitor to a dedicated back-up tool – that would be madness. Instead, we highlight it as an example of just how many of the tools that you already use may be able to serve you beyond their core function. In *WinZip*'s case, this comes in two forms.

First of all, you can set up scheduled jobs – pointing the compression tool to a specific directory that you want backed up on a regular basis, and flicking a few switches to say how it should be done – where, how, when, and what to do with them when you're done. The second tool deals specifically with backups, giving the classic one-click backup approach to your My Documents file, your Desktop, your Favourites, and your email.

It's a quick and dirty approach to backups, but an easy one – one with the advantage that it's software you almost certainly know.

**Needs** Windows 98

**Wants** Windows XP with SP2

**72%** **PCF says...** "Not one to buy just for backups, but a good second usage. The back-up tool is only available in the Professional version."

The Home interface brings together all the apps, but it's just a thin veneer over the spaghetti of shortcuts on your Start menu.



You can use DVDs with *EMC 9*'s new tool to create your own music mixes in minutes.
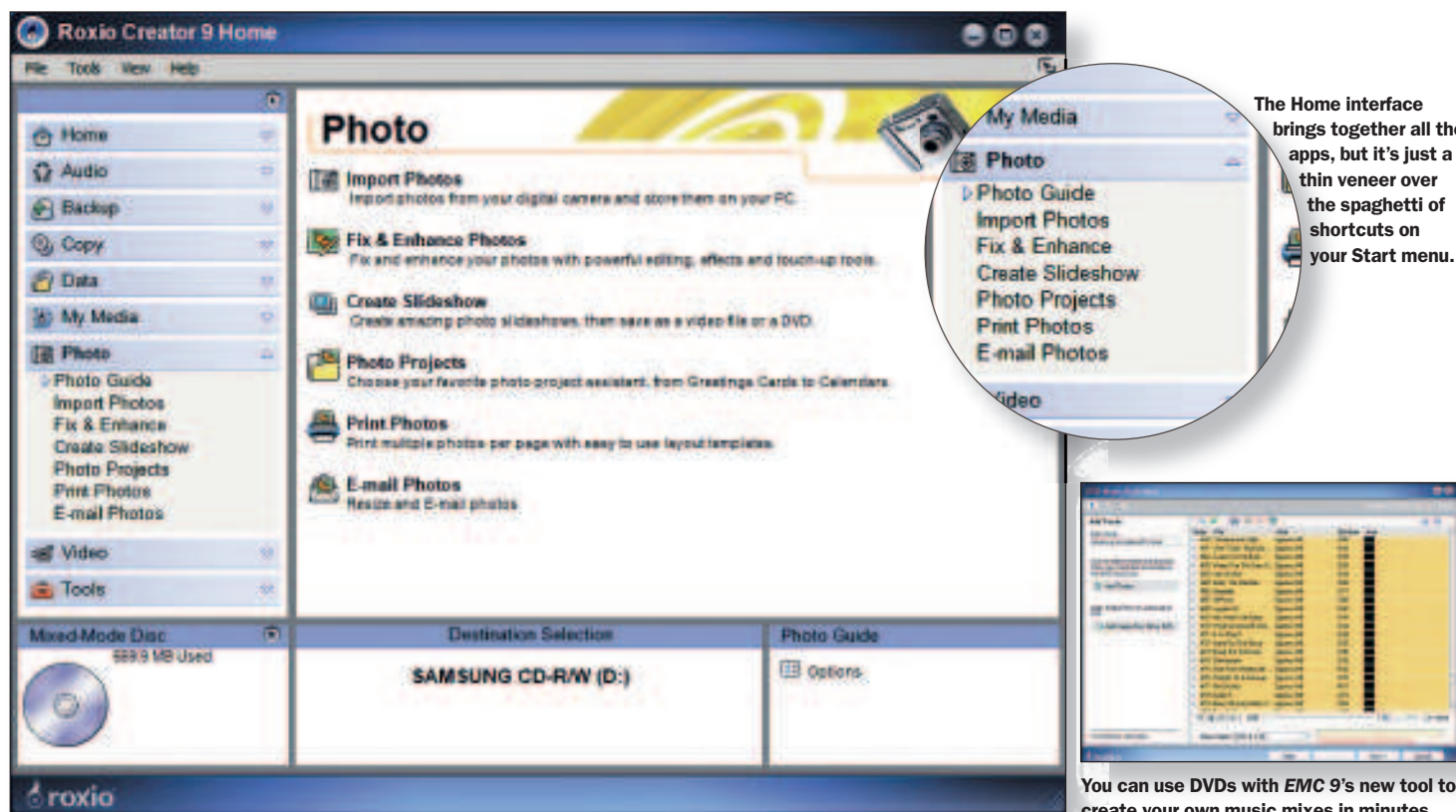
## MEDIA MIXER

# Roxio Easy Media Creator 9

Does pretty much everything possible with a blank disk, outside of scrawling on the front of it with a marker pen…

**Price** £60   **Publisher** Sonic Solutions   **Web** www.roxio.com

The recording and movie industries have slowly been pushing us towards a dark future filled with Digital Rights Management (DRM). If you want to watch a movie on your PSP or your Blu-ray player, great – you'll just have to buy it twice. Of course, this seems to remove any sort of fair use from the equation; people expect to be able to back up their movies in the same way they rip CDs to iPods. Although as a company Roxio doesn't get involved in these political matters, it does produce *Easy Media Creator 9*, which is probably the most comprehensive way to rip, convert, remix and burn CDs, DVDs and even Blu-ray discs.

## BIG IS BEST

While there's no doubt that *Easy Media Creator 9* is certainly bigger than its predecessor, we're not convinced it's that much better – at least for the majority of users. The headline new feature is the ability to copy music and movies straight to iPods, PSPs and mobile phones, which, though welcome, seems a little late to the game because we've already been

doing this for some time with other tools. This is equally true of the ability to create ringtones from your music, which seems rather redundant now that many phones ship with the ability to play MP3s directly.

Notably, *EMC 9* does support Blu-ray, so all the people out there who already have Blu-ray drives can rejoice. All three of them. This release also claims to work with *Vista* which, though eventually useful, does make us feel like Roxio is

### YOU SHOULD ALSO CONSIDER…

>> **Media One Gallery**
   Intervideo
>> **Power2Go**
   Cyberlink
>> **Nero 7 Premium**
   Nero

**"*Media Creator 9* is probably the most comprehensive way to rip, convert, remix and burn CDs and DVDs…"**

struggling to find useful features to add to the package.

With such damp squib headline additions, it's no surprise that the smaller features and improvements form the core of this update. A second video editor has been added (*CineMagic*), which sits below *VideoWave* in terms of functionality, but is also a lot faster and is ideal for people who don't want to

fuss around. You can now also create music DVDs from your MP3 collection, but while it does come with attractive on-screen menus, the whole process is very slow.

'Slow' is the best way to end this review. Roxio has done its usual job of adding new features here and there, but they still all drag along as one disparate mess. Installing *EMC 9* adds over 30 program shortcuts to your Start menu, and each time you run something from the all-encompassing *Creator 9* Home interface, it just minimises itself and launches another program. More work needs to be done to integrate these applications together: a unified theme, some ability to share between applications properly or even just some rudimentary application embedding so that at least it *looks* like they're unified, rather than just strapped together into one installer. **Paul Hudson**


top gear PCFormat

**Needs** 1.2GHz CPU, 256MB RAM

**Wants** 1.6GHz CPU, 1GB RAM

**82**% **PCF says…** "Still the best all-in-one media tool out there, but rough around the edges."

The urban maps add a real-world feel to the combat.

Helis with a heart. *JTF*'s humanitarian mission is achieved with gunships.
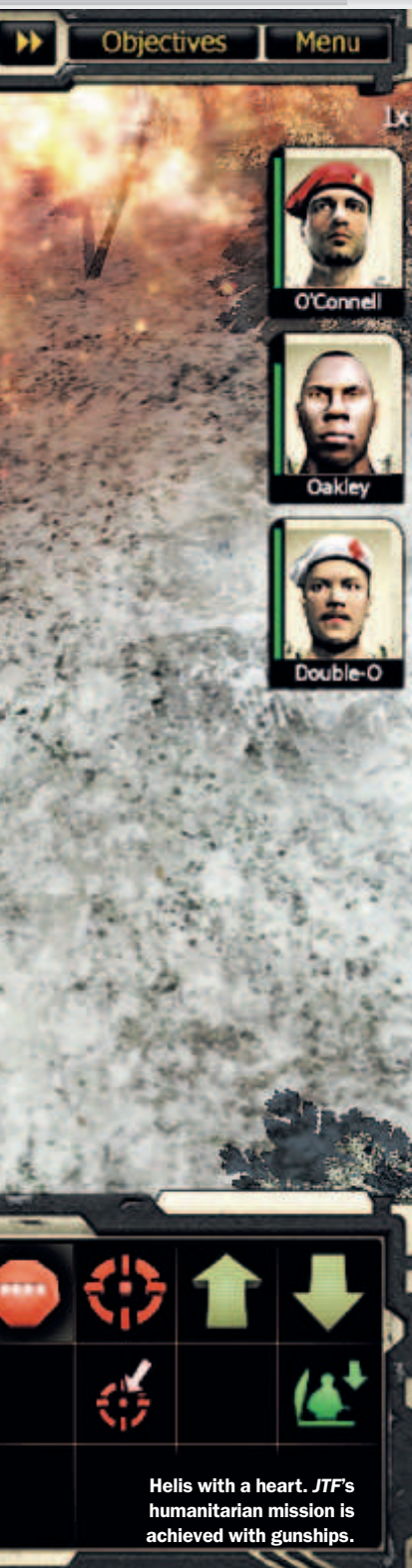
# Joint Task Force

If you have a problem, and no one else can help, don't call the A-Team – give this lot a bell instead...

**Publisher** Vivendi  **Developer** Most Wanted Entertainment  **Price** £35  **Web** www.jointtaskforce.com

How many game logos have an olive branch in them? *Joint Task Force* dabbles in a dangerously stagnant genre-pool: it's a modern-day action RTS, and those can be difficult to tell apart. But what you're actually doing in *JTF*'s war-torn countries is refreshingly free of the testosterone of most RTS plots.

You're a peace-keeping force, closely tied to (but not part of) the UN. Your character, Commander O'Connell, starts the game thankful that he'll have the chance to start saving lives rather than taking them. And admittedly, it's hard to get though a mission killing fewer than a hundred people, but every engagement has a humanitarian aspect, be it the evacuation of civilians, distribution of medical aid or preventing a massacre. All of which turns out to be more fun than *News At 10* led us to believe.

*JTF*'s operations take place on a smaller scale than we're used to: you usually start with a fistful of troops, perhaps a tank or two, and those figures only double when the missions heat up. Surviving troops who distinguished themselves in combat can be promoted to heroes, who level up and can be taken along to future missions. You can call for new troops and light vehicles to be airlifted to your position, and, once you control an airstrip, a cargo plane can deposit tanks and the spicier ordnance. But both types of reinforcement are limited by your funding, and that's not a resource you can harvest. You get cash for completing objectives, but what's interesting about the cash system is that it's also influenced by politics.

Well, 'politics' is perhaps too grandiose a term for a little slider bar at the top of the screen, but it's ingenious. Your little cadre is only as good as its public image, and if you've been letting civilians die and wrecking the place, your suited superiors will have a harder time justifying your budget. By itself that's too simple to count as a proper feature, but *JTF* actually bothers to monitor the exposure of your actions. Screwing up a civilian convoy escort side-mission in a remote forest won't throttle the cash-flow, but letting one peg out right in front a TV van at a refugee camp is literally bad news.

Admittedly the system doesn't *quite* come together: there aren't enough TV vans, and it's never a good idea to let civilians die, even off-camera, so your tactics don't change depending on ↘

**ON THE DVD**
>> Screenshot gallery

**BUY THIS IF YOU LIKE...**
>> **Act Of War** Atari
>> **Cannon Fodder** Virgin
>> **Command & Conquer** EA

Great news for larceny fans: you can nick anything on wheels.



## Reporting in
The age of instant media is upon us



Fictional news network MSCBC reports on your operations. Watch as the spin changes – sometimes it's that you're bringing hope, other times your methods and motives are questioned. The reports use prerecorded footage, but it's still strangely fun to see yourself on TV.

**Taking advantage of your environment is key during the longer battles.**

# Hero in a hatchback
## Losing the arms race, winning with legwork



**1** An enemy tank guards the end of this war-torn street. Our men are in armoured personnel carriers, which won't stand up against the tanks, but on foot many of them will be splatinated before they can fire back.



**2** Like all of life's problems, this can be relatively easily solved by stealing a nearby car. We order one man to hotwire a civilian Lada, and have the rest of the men to climb out of the jeeps and ready their rockets for attack.
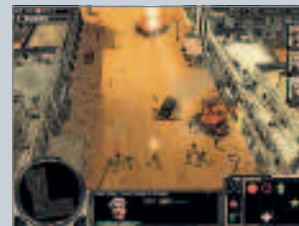


**3** *PCF*'s Lada commando swerves drunkenly towards the angry metal monster, our rocket troops using it as cover. While the tank spams the car, boomy death swoops in from our bazooka chorus. Eat that and like it, tank face!

location. If the best weapons in the game tended to cause a lot of collateral deaths, the tension between efficacy and image would be delicious. As it stands, the purpose of the media-coverage dynamic is to make you more subtly conscious of your behaviour.

## RED DOUBLE CROSS

At a higher level, there *is* a difference between what your team are reportedly doing in a given war zone and their actual conduct. Most of the time your superiors are ordering you to further a terrorist-hunting agenda, often outside of your jurisdiction, and the humanitarian work is your purported purpose. A heartless player can ignore this and do only what he's ordered, but good deeds are money, and money is its own reward. What makes this deception interesting is that you're not entirely sure which agenda your character subscribes to.

He's clearly on a redemptive path, making up for misdeeds in Mogadishu, but he's also an obedient soldier. One flashback sequence actually transcends the miserably poor voice acting to create an affecting scene. You, the good guy, forcing a pinless grenade into the mouth of a captive enemy, to 'booby-trap' him for when his comrades turn up. But does

> ## "You can steal any vehicle you see, from forklift trucks to lorries"

your new-found desire to save life extend to disobeying your current terrorist-extermination orders? Let's just say it comes up.

On a more immediate level, what makes *Joint Task Force* gratifying is the fragility of its world. Troops – both yours and the enemy's – are cut down in seconds by heavy fire, and there are some wonderfully OTT moments, where they're sent cartwheeling back from high-calibre impacts. Developer Most Wanted (AKA HD Interactive, of *Nexus: The Jupiter Incident* fame) seem to delight in making things shatter, collapse, ignite, crumble and explode. Combined with drunkenly incompetent driving skills, this makes simple journeys calamitous. When we told one of our units in a civilian car to drive down a short stretch of open road,

he knocked down three fences, jumped over two piles of timber, smashed through a log cabin and hit a lamp post.

## DRIVEN TO DESTRUCTION

In fact, that short and absurd sequence combines the best and worst of *JTF*. Best: you can steal any vehicle you see, from forklift trucks to huge lorries. We turned the tide of one mission by driving a sniper in a hatchback to an enemy tank and stealing it before the driver got there. Worst: your troops trained at the Austin Powers driving school. For every brilliant vehicular gambit you pull off, there are two occasions on which a tank can't figure out how to reverse to escape (going backwards is key, chaps) meaning you lose the whole mission. It's just not acceptable in a game where units are so precious, reinforcements so rare and micro-management techniques so vital.

On the plus side, it is occasionally very funny. We watched a motorboat perform a 58-point turn to extricate itself from between the shore and a jetty, by which point it didn't really matter that the people he was leaving to pick up were long dead by mortar fire.

The amateurish acting and vehicular AI, along with a sprinkling of pretty glaring bugs, stop *Joint Task Force* short of distilled joy. But it does evoke some of the gritty nobility of trying to do good in a vicious environment, and that's a rewarding feeling. **Tom Francis**



**The tanks, while packing a serious punch, are so unwieldy that they'll cost you the odd mission.**

| | |
|---|---|
| **Needs** | 1.5GHz CPU, 512MB RAM, 64MB 3D card |
| **Wants** | 2.5GHz CPU, 1GB RAM, 256MB 3D card |
| **Net gaming** | Eight players online or LAN |
| **Discuss** | pcformat.co.uk/mag/jtf |

**79**% **PCF says...** "Explosive fun with a conscience; refreshing and interesting stuff."

WAR OF THE WORLD

# DEFCON

Bring peace to the Earth, one megaton at a time

It's the end of the world as we know it, and we're annoyed that Russia has more points.

**Price** £10 **Publisher** Introversion **Developer** In-house **Web** www.introversion.co.uk

**F**our million people are dead. A light flickers, somebody coughs. Eight million casualties are noted only by a slight shifting of 10 pixels on an LCD screen. This is the end of the world, as seen by *Microsoft Excel*.

An old jape amongst gamers is to question why *Doom*, *GTA* et al garner such criticism for their violence when their death tolls rarely even scrape four figures, yet *Civilization* extinguishes the lives of millions in one fell swoop with nukes. *DEFCON*, then, is the most violent game of recent times, achieving death tolls in the hundreds of millions.

### ON THE DVD
>> Screenshot Gallery

### BUY THIS IF YOU LIKE...
>> **Missile Command**
Atari
>> **Scorched 3D**
www.scorched3d.co.uk
>> **A Nice Game of Chess**
Probably originated in India

And it's cold, so cold about it – in the default game, a successful nuclear strike equals one point. The apocalypse has never been so clinical.

And that's *DEFCON*'s greatest achievement. For evoking continent versus continent warfare, nothing else

## "Defcon is the year's tensest multiplayer experience"

manages this degree of detachment. It looks simple and plays simple – passers-by may write it off as Flash experimentation. But what they don't get is the competitiveness – the fixation with scoring more points than Asia that means the loss of millions of Mancunians is not a tragedy, but an irritation. It's not about building bigger and better, but rather about timing and observation, and because each of the (up to) six sides has an equal array of munitions, victory comes from picking your moments and identifying weak spots, not just pummelling your

opponent's biggest city. Soft-lit vectors it may be, but it's also the year's tensest multiplayer experience.

### HERE, O'SHEEMA
*DEFCON* is, however, damned to be dominated by experts. Some of the *PCF* team were too demoralised by decisive losses to play again, and this could happen on a larger scale. A single flaw in your defence can make the difference between a tense battle and humiliation.

Every game is played with the same units and map, which gives it purity, but also repetition. For £10, it's difficult to make this a criticism, and should you prefer chess to FPS, finding elaborate ways to transform Texas into an irradiated hole in the ground will remain a guilty pleasure. **Alec Meer**

**Needs** 600MHz CPU 128MB RAM, 32MB 3D card
**Wants** 1GHz CPU 512MB RAM, 64MB 3D card
**Net gaming** 2-6 players, online and LAN
**Discuss** pcformat.co.uk/mag/defcon

**83**% **PCF says...** "A slight affair, but tense, focused and the best finger-on-the-button sim ever."

## Axis of evil
### The fine art of diplomacy and betrayal



**DEFCON's arguably at its best when played in teams** – say, three lots of two continents. Shared radar helps flag up your foes' defensive vulnerabilities, pincer movements work a treat and, when you've broken the other team, you can always turn round and stab your ally in the back. Marvellous...

The dinos are pleasing to the eye, and convincingly ferocious in battle.

Below: That the Brachiosaur is an enormous herbivorous creature doesn't stop it stomping your T-Rex into meat paste...

## GRRR!

# ParaWorld

**high score** PCFormat
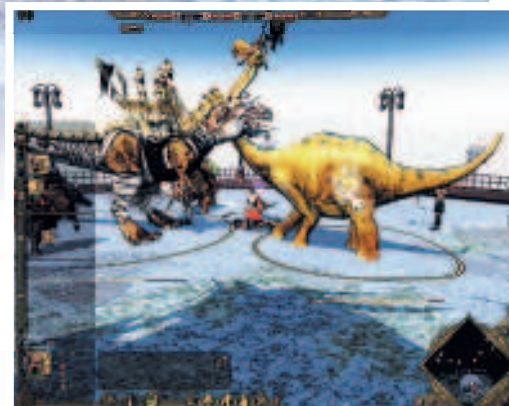
## We're used to making history in real-time strategy games. Fancy making prehistory?

**Price:** £35 | **Publisher** Deep Silver | **Developer** Sunflowers | **Web** www.sunflowers.de

**A**s far as real-time strategy games go, while it's clearly been constructed around certain familiar elements, *ParaWorld* has a certain *je ne sais quoi*. It adheres to an old adage about editing magazines for children: if you haven't anything else to put on the cover, stick a dinosaur on it.

The first time an enormous extinct beast rampages across the screen in the opening cutscene, it's clear that lobbing a big lizard into the mix works just as well in videogames. Luckily, if you dig into *ParaWorld*'s hardened bedrock a

### ON THE DVD
>> Screenshot gallery

### BUY THIS IF YOU LIKE...
>> **Rise of Legends** Microsoft
>> **Dawn of War** THQ
>> **Kohan II** Take 2

little further, you'll find more interesting things than mere dinosaurs lurking in it.

The game's slap-bang in the lineage of the modern RTS, with a single campaign to play through, three tribes (in traditional 'defensive', 'offensive' and 'sneaky' configuration), online multiplayer and skirmish mode. Your economy is primarily reliant on the *Age of Empires*-esque gathering of wood, stone and foodstuffs. You've seen much of this stuff before.

### DINO DUNNO
But then its ideas start slapping you. The biggest of which dwarfs the Brachiosaurs in terms of impact, which is the army manager. A quick tap of **[Tab]** brings a list of all your forces.

You're only allowed a limited number of troops in each of the game's tech-levels, which adds new constraints to your thinking. Then there's the fact that any unit can be promoted from a lower epoch to a higher one, which makes for sophisticated micromanagement, and the nine heroes who unlock new abilities and troop types when promoted. All of a sudden, you realise that *ParaWorld* could arguably have most tactically demanding

army construction system we've seen in any real-time strategy game yet.

There's a mass of smaller details too. Some units can have other units mounted on them, essentially using them as mobile bunkers. Many unit types have optional upgrades to specialise them one way or the other, like *Dawn of War*. The single campaign is better than the majority of its rivals, with plentiful side-missions for you to pursue or ignore as you wish, earning you more troops for future battles. Perhaps there are almost too many options, without sufficient introduction to their functions.

In terms of mass of *stuff* it reminds *PCF* of *Earth 2160*, but with a far better interface. It doesn't redefine the genre in any way, but is one of the finer examples of the year. **Kieron Gillen**

**Needs** 1.6GHz CPU, 512MB RAM, 128MB 3D card.

**Wants** 3GHz CPU, 1GB RAM, 256MB 3D card

**Net gaming** 2-8 players

**Discuss** pcformat.co.uk/mag/paraworld

**81**% **PCF says...** "*Paraworld* may not be earth-shattering, but it has depth in spades."

# Prepare for war
## On my signal, avoid the T-Rex if possible

**When playing Skirmish or multiplayer games, you can set a total for the match with every troop in the game being awarded a set cost. Each player is then free to select their side. This system, popular in table-top gaming, means the tactical battle starts before the first real-time click is made.**

# Black Buccaneer

## As a simple man once said: "Why do they come to me to die?"

**Price** £30 | **Publisher** 10tacle | **Developer** Widescreen Games
**Web** www.black-buccaneer.com



**Your alter-ego has many talents like** *pushing boxes around*. **Yeah, we know.**

**G**enerally, you know you've got a great game on your hands when playing it provokes a physical response. The pulse quickens, sweat appears on the forehead, hands go clammy and you lose yourself in another world for a few hours.

Unfortunately it seems repellent games engender their own physical response. Playing *Black Buccaneer* resulted in a form of Tourette's Syndrome, manifested by inadvertent twitching and bouts of uncontrollable swearing, accompanied by a glowing, white knot of agony somewhere just above the right eye.

Now, we thought that the *Godfather* game contained all that is wrong with console ports, but at least that had the excuse of being dumped in development hell for the better part of a decade. *Black Buccaneer* is just simply not very

good. No, scratch that – it's actually abhorrent, and almost deliberately so.

### CLONE BORES

It's a *Tomb Raider/Prince of Persia* clone with none of the charm of those titles. It's a story of pirates, treasure, voodoo and monkeys destroyed by awful platforming and loosely tied together by laboured, static comic strips.

Widescreen looked to get around the game's linearity by frequently making you retrace your steps. See, freedom of movement: back *and* forward. Combat's a series of left/right mouse-clicks, and even the introduction of friendly zomboids can't rescue it.

In the decade since Lara bounced onto our monitors, we've been subjected to countless clones, and if *BB* had been released five years ago it would have been average. There is no excuse for anyone to make games like this any more. **Dave James**

**Needs** 1GHz CPU, 256MB RAM, 64MB 3D card

**Wants** 2GHz CPU, 512MB RAM, 128MB 3D card

**Net gaming** None

**27%** **PCF says…** "A shocking waste of money and hard drive space."



**Someone always goes that little bit too far at fancy dress parties.**

## WAR IS SWELL

# Company of Heroes

Is there still an audience for this theatre of war? Well, if there wasn't, *CoH* would draw the crowds anyway…

**gold**
**PCFormat**

**Price** £35  **Publisher** THQ  **Developer** Relic  **Web** www.companyofheroesgame.com

**T**here's a little bit of *PCFormat* body politic that's getting a little weary of WW2-based games. You'd think this particular arena would be all played out by now – how many more recreations of the Omaha Beach landings do we need? The answer, thanks to *Company of Heroes*, is at least one. Relic's latest is doused in atmosphere, and revitalises a subject matter that was in danger of being done to death.

Which is all the more surprising not only because of the setting, but also the

way it plays. If you've ever played *Dawn of War*, then playing this will be like slipping into an old pair of slippers. It re-uses the mechanics that made *DoW* great, while adding flourishes of its own. Get over the initial feeling of déjà vu this garners, though, and you'll discover something that ups the already lofty ante considerably.

### KILLING IN THE NAME

So, in order to collect resources for your war effort, you've got to capture strategic points on any given map. There are three types of resource though, rather than *Dawn of War*'s two (Manpower, Munitions and Fuel, for troops, upgrades and vehicles respectively, broadly speaking), and points can be consolidated further with observation towers, which boost resource-gathering abilities The order in which you grab strategic points now

requires a little more thought than it did in *Dawn of War*.

The tech tree is both sprawling and transparent; deep, but sensible. Some structures, such as your motor pool, are predicated on others, which you'll need to build first. Reverse-engineer the process and the beautiful simplicity of the game becomes apparent – it all tracks back to grabbing those strategic points, defending them, and pushing into enemy ground to steal territory. And while it's possible to get lost, initially, in the manifold upgrades and abilities you can bestow on squads and vehicles, each twisting branch of the tech tree leads deftly back to the root, exactly in the same way as in *Dawn of War*. Think of engineers as Techpriests, for example, and you'll get an immediate grip on how things work.

Of course, there's much more to the

## Supply lines
### Keep your troops in bullets and baguettes



Unlike Dawn of War, in order to reap the most resources from captured strategic points you'll need a 'supply line', signified by adjacent strategic points on the map. Get one out on its own and you won't maximise manpower, ammo or fuel. It adds another head-scratching problem to the game.
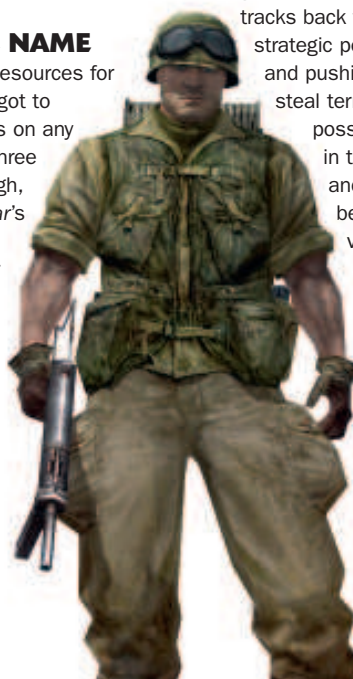
The first time you get to use tanks is a definite fist-in-the-air moment.


Depending on your guns, you might need to manoeuvre to enemies' rear armour.


The Germans like using flamethrowers. Luckily, you can upgrade similarly.


The cutscenes concentrate on your troops – the titular heroes.

It's about time fellas! We started to think maybe you boys got lost!

game. As your troops gain experience, you can gain and spend Command Points to specialise in three areas, infantry, armour and air, that allow you to call in, say, air strikes, super-heavy tanks or paratroop drops. These, of course, use resources too, so you'll need to balance out the need for new units and buildings with these bonuses.

## PHOTOGENIC FIGHTING

And it looks incredible. The new Essence engine gives the game a graphical fidelity that's brilliant to behold; and like *Dawn of War*, the ability to zoom in to a detailed individual's perspective makes for great eye-candy. On top of this, the copious voice-samples add more believability. Troops act more intelligently than in *Dawn of War*, too, taking advantage of cover, even picking up fallen enemy weaponry if directed to.

Balance is provided by the time it takes to break down and move heavier weaponry, such as anti-tank units and heavy machine guns; it's best to consider where to place these, as moving them around alarmingly reduces their efficiency.

All of which adequately describes the process of playing the Skirmish mode maps, but leaves out the finer points of the campaign mode. Scripted

# Bonjour Americans!
Taking and defending Carentan in two tricky missions…
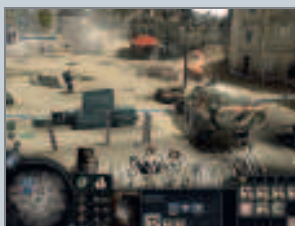

**1** In order to take Carentan, you'll need to capture the church and turn it into barracks. From there, you'll need to reinforce your troops and sally forward to grab the town square.


**2** The next mission is cracking – try to hold Carentan as the Germans counter-attack. This means fortifying three bridges with your engineers.
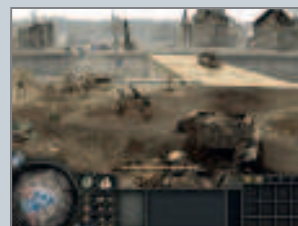

**3** It's brilliantly tense, and you'll barely have time to think about the secondary objectives – moving out over the bridges to capture outlying strategic points.

events thrillingly interrupt your objectives, and the objectives themselves – securing a road for supply run, setting defences with your engineers for a tank-based German counter-attack – add a splendid layer of

*"A tactical, immersive game that's also fist-pumping fun"*

complexity and widescreen cinema-sheen to the resource-gathering and enemy-shooting. It's a brilliantly immersive affair, one that tasks your tactical cortex while never losing sight of the fact it's a game, and should be fist-pumping fun, always ready to entertain as much as it challenges.

The biggest drawback is that, for *DoW* vets, *CoH* may be a little familiar – but we think that's an asset. It builds brilliantly on a rock-solid base, and has sent us back to our *Band of Brothers* boxsets by revitalising WW2 gaming, too. **Jes Bickham**


The destructible scenery adds loads to the game – enemies can't hide forever…

| Needs | 2GHz CPU, 512MB RAM, 64MB 3D card |
|---|---|
| Wants | 3GHz CPU, 1GB RAM, 128MB 3D card |
| Net gaming | 2-8 players |
| Discuss | pcformat.co.uk/mag/coh |

**92**% **PCF says…** "At once familiar and surprising. A monster slice of historical strategy fun."

**The driving sections are *absolutely nothing like* a bespoke-tailored vision of *GTA*.**

## DOG'S BOLLARDS

# Reservoir Dogs

### Torture us? Well, who knows what Eidos really wanted to do...

**Price** £30  **Publisher** Eidos  **Developer** Lionsgate  **Web** www.reservoirdogsgame.com

**J**ust when you thought it was safe to… no, wait, wrong film. It may not be quite as old as *Jaws*, but Quentin Tarantino's controversial heist thriller isn't exactly a new release, is it? So why wait until now to release a game based on the bloody gangster classic?

It's an interesting poser – made all the more debatable by the fact that this

is essentially a standard shooter, with a couple of necessary plot twists.

### DOGGY STYLE

The game takes the bold step of tweaking the film's narrative, mixing up scenes from the film and adding some paint-balling action to the mix. This means you step into the claret-soaked shoes of most of the cast as you attempt to salvage something from the botched bloodbath of the robbery.

Combat is reminiscent of, albeit inferior to, *Max Payne*. You do have the option of not shooting everything that moves, though. You can even threaten civilians and neutralise them. Cops are a different matter, though – you have to start beating up hostages to disarm the fuzz.

At the end of each chapter, your preferred method of 'dealing' with people is given a rating of Psycho,

> ## "The game takes the bold step of breaking the film's narrative"

Career Criminal or Professional – the lower the body count, the more respectable you become. But where's the fun in just waving a shotgun around?

Occasionally, a chapter will involve driving somewhere, or being involved in a car chase. These levels are a decent addition, but the game could cope perfectly well without them.

Aside from the lack of originality in combat, there are other issues. The character models aren't especially well synched with the voice acting, for example, which doesn't mask what is a pretty linear game.      **Andrew Sutcliffe**

**Needs**  800MHz CPU, 256MB RAM, 32MB 3D card

**Wants**  1 GHz CPU, 512MB RAM, 128MB 3D card

**Net gaming**  None

**52**%  **PCF says...** "The film tie-in adds interest, but it's too linear and we've seen it all before."



**That's right, bloodshed fans – all the gore of the film's made it into the game. Hurrah!**

Dynamic shadows give the impression of a believable, living world.


Cutscenes give us a chance to meet the game's retinue of hired goons.


Environments are so detailed they make us want to book a holiday.


Guns, God and lashings of gratuitous violence are all here for the taking. Olé!

## CARTEL CARNAGE

# El Matador

Take the bull by the horns in the bullet-riddled action shooter that borrows from the best…

**Price** £30 **Publisher** Cenega Publishing **Developer** Plastic Reality **Web** www.elmatador.net

**H**ere, it seems, is a game that doesn't so much as hide behind Picasso's assertion that "great artists steal" than grab it by the throat and use it as a makeshift riot shield. The game is so unflinchingly derivative that it succeeds because of it, taking the best elements of some of the last five years' most successful titles and blending them together to form something unoriginal yet entertaining.

The plot features everything you'd expect from a shooter that's based in Colombia; drug barons, jungle hideouts,

### "Your squad seem worryingly good at dying without you"

people named things like Carlito Lopez, and a worrying proliferation of dubious Kalashnikovs. What it lacks in innovation, though, El Matador almost makes up for in detail and character. The engine boasts HDR lighting, destructible environments and dynamic shadows, allowing its developers to create a rich,

dynamic world of tropical islands, dilapidated cities and huge, imposing dockyards, all rendered in impressive detail.

### THERE'S NO 'I' IN TEAM

As the leader of a DEA strike team, you're rarely alone for long, although sending your squad in first isn't an option – they're worryingly good at dying without you to take a bullet for them. The non-stop firefights are frequently so intense that you're too busy trying to survive to notice you've been

### Ban this sick filth
Conchita, wash your mouth out…



From the opening scene's expletive-strewn outbursts, it's clear that El Matador's got a filthy gob on it. Interestingly though, while there's the usual thoughtful option to remove all traces of blood and gore from the game, there's no such option to remove its unsavoury verbal counterpart. Odd.

**ON THE DVD**
>> Screenshot gallery

**BUY THIS IF YOU LIKE...**
>> **Max Payne** Rockstar Games
>> **Far Cry** UbiSoft
>> **Soldier Of Fortune II** Raven Games

shepherded in any particular direction. Within the first few minutes you'll amass an imposing collection of firearms, and the game's extensive arsenal is obtainable within the first few hours of play, leaving little to discover later on.

It's sadly evident the game could have done with some more play-testing. It's hard-going from the outset – ammo is scarce and long reloading times often fatal. It's also got a few bugs. One mission had to be abandoned and restarted because a vital event wasn't triggered when it should have been, and at times we were able to 'fall off' a level just by exploring off the beaten track.

These issues are ultimately enough to hold El Matador back from a high score. More polish could have created a genre classic. **James De Vile**

**Needs** 1.5GHz CPU, 512MB RAM, 128MB 3D card

**Wants** 3GHz CPU, 1GB RAM, 128MB 3D card

**Net gaming** None

**Discuss** www.pcformat.co.uk/mag/matador

**64**% **PCF says…** "Brazen plagiarism it may be, but this shooter is a worthy tribute to its forebears."

## DON'T WALK

# Wik and the Fable of Souls

## Tongue-tied platforming action

**high score** PCFormat

**Price** $20   **Publisher** Reflexive.com   **Web** www.wikgame.com

**T**his is, in short, one of the most intriguing and addictive indie games available. Developed by reflexive.com, *Wik* is a platform puzzler like most others, but with a singular twist in the gameplay – mainly that the main character is unable to walk. Instead, young Wik can only hop and swing from his tongue as he gleefully grabs as many evil grubs as he can from each level and feeds them to the larger monsters. The restraint on movement is compensated for by the amazingly fluid controls and the childish charm of Wik's fairy-tale world, which is mostly related to the player in adorable poetry. Full of acrobatic singleplayer goodness and an addictive 'Challenge Mode' – *Wik* is a tasty treat.

Wik's tongue-swinging antics are his main method of movement.

| | |
|---|---|
| **Needs** | 700MHz CPU, 128MB RAM, 64MB 3D card |
| **Wants** | 1GHz CPU, 512MB RAM, 128MB 3D card |
| **Net gaming** | None |

**80**% **PCF says…** "Frantic platforming with a whimsical bent."

## ROLE TO PLAYING

# Anito: Defend a Land Enraged

## The hills are angry…

**Price** $20   **Publisher** Anino Entertainment   **Web** www.aninoentertainment.com

**D**on't let the unusual name deter you, *Anito* is a thoroughly standard, but not all bad RPG. All the usual elements are here – magic, 'only you can save your people'-type adventures and evil 'demon men' – but with a few nice improvements. Firstly, in an odd step for an isometric RPG, the game is played with the keyboard. It can make targeting enemies a little trickier, but it does add to the sense of freedom that makes this game appealing. The graphics also tend to fluctuate between rather-stunning-for-an-indie-game to somewhat appalling. Ultimately *Anito* is a bog-standard, enjoyable romp with enough skills and spells to challenge most but nothing to distinguish it from the crowd.

Using the keyboard can make navigation easier than in other RPGs.

| | |
|---|---|
| **Needs** | 600MHz CPU, 128MB RAM, 16MB 3D card |
| **Wants** | 1GHz CPU, 256MB RAM, 32MB 3D Card |
| **Net Gaming** | None |

**62**% **PCF says…** "Just what you'd expect from an isometric RPG."

# Also out

**By Joe Martin & James Carey**
GAMING ROUND-UP

### Dinohunters
**Price** Free!
**Publisher** Kuma Reality Games
**Web** www.thedinohunters.com

Episodic gameplay is all the rage, and it's starting to reach some of the smaller companies out there as well. *Dinohunters* is a new set of ongoing adventures built on the Source Engine, each about a TV crew who zoom around in a time-travelling van. It can be crass and childish, but it's still worth a look to see how corporate sponsoring can ruin an otherwise mediocre game.

| | |
|---|---|
| **Needs** | 2.4GHz CPU, 512MB RAM, DX 9 3D card |
| **Wants** | Broadband, 3.0Ghz, 1Gb RAM, 256Mb 3d Card |
| **Net gaming** | Deathmatch |

**40**% **PCF says…** "Like a T-rex's toenails, this whiffs of cheese."

### Break Quest
**Price** $20   **Publisher** Nurium Games
**Web** www.nurium.com

*Breakout* clones are the first product of any amateur game-maker and, therefore, there are hardly any good ones. With plenty of excellent levels and power-ups in the mix, *Break Quest* manages to keep your attention a little longer than most, and the physics are a fancy extra. On the downside, it feels kind of cheap and tacky at times – with a tendency for flashing lights and high-pitched anthems accompanying a flimsy storyline.

| | |
|---|---|
| **Needs** | 700MHz CPU, 64MB RAM |
| **Wants** | 1.0GHz CPU, 128MB RAM |
| **Net haming** | None |

**68**% **PCF says…** "A few flaws drag down a great clone."

### Toribash
**gold** PCFormat
**Price** Free!   **Publisher** Team Toribash
**Web** www.toribash.com

*Toribash* is the best beat-'em-up ever made. Genuinely. But prepare yourself, this is *turn-based* fighting. Imagine posable artist's mannequins having a fight in stop-frame animation. You bend or extend the joints of your body as a timer runs down. When the timer ends your move is played out, against your opponent and vice versa. Enjoy the carnage, we guarantee there's none finer.

| | |
|---|---|
| **Needs** | 1GHz CPU, 256MB RAM, 64MB 3D card |
| **Wants** | Your legs for breakfast |
| **Net gaming** | Internet 10+ players |

**90**% **PCF says…** "How often does a game reinvent a genre?"

### Goliath
**gold** PCFormat
**Price** Free!   **Publisher** Level 11 Games
**Web** www.goliathgame.com

Boasting massive 3D landscapes, plenty of action and objective-based gameplay, *Goliath* is a cut above the rest. In fact, pretty much the only flaw is that the singleplayer game doesn't give a rousing story, merely dumping the player into the world. The co-op more than compensates though, as players raid and repair ruins in their quest to destroy the mega-tank, Goliath.

| | |
|---|---|
| **Needs** | 1.5GHz CPU, 256MB RAM, 128MB 3D card |
| **Wants** | 1.8GHz, 512 RAM, 256MB 3D card |
| **Net gaming** | Co-op over internet or LAN |

**91**% **PCF says…** "One of the best free co-op games available."

# Current affairs

As important to your PC as a processor, the PSU is often overshadowed by other, more limelight-hogging components. Mike Channell and Al Bickham put the latest models through their paces.

**C**onsider the humble PSU. Sexless necessity, or noteworthy component to be proudly displayed with the rest of your l33t bits? With the broad availability of windowed PC cases, it's very much the latter, and PSUs are now more of a commodity item than ever before. Gone are the days of nondescript grey boxes with a rainbow spray of noodlage spewing hither and thither. Say a fond ta-ta to noisy, heat-chuffing units that perform one solitary task. As you'll see from the models on show in this test, the power supply has truly come of age.

However, testing power supplies is a task which, without some rather expensive hardware (30 grand's-worth, to be precise), is basically impossible to do. Fortunately, *PCFormat* has managed to acquire the services of such kit for the purposes of this feature. The results of our endeavours are here in all their glory, so finally it's possible to sort the squeaky howlers from the Tesla tyrants with absolute certainty.

### POWER PLAY
Ultimately, the PSU is a complex and intricate component, and the feature-set of the current crop is broader than ever. There's much to choose between them, and selecting the right one for your rig means examining each one thoroughly to ensure it has the features you both want and, for the sakes of performance and safety, the ones you really need.

So let's start with the necessities. Frankly, a PSU isn't worth a fig if it can't actually match the needs of your rig. That's why it's worth auditing your PC's power requirements before shopping. We'll show you how to do this overleaf. And even if you're not in the market for a PSU, it's a worthwhile exercise, to find out just how much juice your rig's drinking. Once you've figured

> **"In order to future-proof your rig, we suggest going for as high a wattage as you can afford"**

## Buyer beware!

All the PSUs on test here come with at least two PCI-Express six-pin power cables, designed to drive a CrossFire or SLI setup. When you go PSU shopping however, make sure you check the specs of the models you're browsing carefully – older, AGP-compatible models don't even sport the one!

out the overall wattage required by your PC, you're armed with the info you need to select a PSU of a specific wattage. As you already know, PSUs come with various output ratings; from small form-factor boxes (such as those found in Shuttles) that provide a mere 250W, to monsters such as Enermax's Galaxy, which can support a draw of one kilowatt of electricity. Crazy stuff.

## PUSH THE ENVELOPE

Once you've determined your wattage needs, it's important to know what happens if you reach, or even exceed, that wattage. EU regulations demand a level of protection for the consumer, so every PSU sold in blighty must, by law, offer overload protection circuitry. This works by cutting off the supply completely to prevent damage to the PSU, and the subsequent smoke, electrical fire and burning-flesh scenarios which may arise. However, some less well-known brands slip through the net, and don't carry such safety systems. One of the models on test actually claimed to have overload protection, but when we ran the test, the power supply didn't cut out; it continued to chug along a good way above its quoted tolerance, getting rather hot and producing a worrying whine as it did so – although we didn't actually manage to make it pop. As you might imagine, this sort of carry-on is pretty dangerous.

Are you conscious of efficiency? It can save on your power bills, you can also feel smug about doing good works for your planet. Most PSUs have active PFC (power factor correction) which irons out and synchronises power-flow waveforms to increase efficiency. Despite this, efficiency ratings are often far from the percentage quoted on the box, purely because they're difficult for consumers to measure and thus contest; it's sharp practice, but it happens. Efficiency also varies between models, so if you're energy-conscious, you'll want a unit that doesn't waste watts by simply being switched on. We measure this by checking the true input draw of the PSU against output at the full quoted wattage, and noting the differential to come up with a percentage figure.

Can a PSU handle more draw than the wattage figure quoted on the box? Many PSUs claim stability ↘

**Work out how much power you need, before you start shopping for a new power supply.**

# Lab report

## "Pull the lever, Igor! Give my creation life!"

There are four key tests we needed to run in order to ascertain a power supply's effectiveness, and this is where our custom-built testing station came into play, as it can supply and draw as much or as little power as you wish, and measure every watt, volt and amp along the way. However, unlike most benchmarks we run to test equipment, most of these, bar efficiency, result in a pass or a fail.

**Test 1: Wattage**
Can the PSU actually supply the wattage claimed by the manufacturer?

**Test 2: Efficiency**
Does the PSU run as efficiently as the manufacturer claims?

**Test 3: Overload protection**
Does the safety cutout circuit kick in when the overload becomes too high?

**Test 4: Overload**
Each PSU can run at a set wattage – can it maintain this?

## Hiper Type R 730W

**Price** £85
**manufacturer** Hiper
**Web** www.hipergroup.com

**62**%

It looks spanking gorgeous but it claimed 730W, but our sample peaked at 679W – which is good, but not what it says on the tin.

| | |
|---|---|
| **Full Load** (679W) | ✗ |
| **Efficiency** | 79% |
| **Safety cutout** | ✓ |
| **Overload** N/A (cutout at 679W) | |
| **Modular** | ✓ |

## Be Quiet Darkpower Pro 600W

**Price** £127
**manufacturer** Be Quiet
**Web** www.be-quiet.com

**47**%

Ironically, the Be Quiet was anything but when we turned up the wick. A high-pitched whine is never good news, and no cutout at overload is bad juju.

| | |
|---|---|
| **Full Load** | ✓ |
| **Efficiency** | 75% |
| **Safety cutout** | ✗ |
| **Overload** | ✓ |
| **Modular** | ✓ |

## Xilence XP600

**Price** £60
**manufacturer** Xilence
**web** www.xilencepower.com

**79**%

Despite its distractingly tacky red-and-black paintjob, the bargain-basement Xilence PSU only fell down when it came to efficiency.

| | |
|---|---|
| **Full Load** | ✓ |
| **Efficiency** | 70% |
| **Safety cutout** | ✓ |
| **Overload** | ✓ |
| **Modular** | ✗ |

### PROCESSOR

Core 2 Duo – 65W ❏
Core 2 Duo Extreme Edition – 75W ❏
Athlon 64 FX-62 – 125W ❏
Pentium D 950 3.5GHz – 105W ❏
Athlon 64 X2 4800+ – 95W ❏

### MOTHERBOARD

Expect around 60-75W plus about
5W per USB device attached ❏

### GRAPHICS CARD

NVIDIA 7900GT – 170W ❏
NVIDIA 7900GTX – 200W ❏
NVIDIA 7950 GX2 – 237 ❏
ATI Radeon X1900XTX –260W ❏
ATI X1950XT – 270W ❏

### DRIVES

Optical 30W ❏
Hard Drive 30W ❏

### PCI CARDS

5-10W per card ❏

Gone are the days when a PSU was a dull, single-function grey box.

in overload situations, and only cut out exactly when more power is drawn by the PC than the PSU can physically handle. However, many manufacturers quote safe power supply overload figures – which may be relevant if you're looking to upgrade. To be honest, our recommendation, in order to future-proof your rig, is to get as high a wattage as you can afford, while taking into consideration other aspects that are desirable in a PSU.

A PSU's rail-count, for example, is worth noting. Rails are the different lines down which power is passed to your various components. The reason for having more than one is that any power draw on one rail doesn't impact on the output of other rails, so it's harder to compromise the performance of any one part of your system by drawing too much power down a single rail.

### BOX OF TRICKS

And finally, we come to that most subjective of testing areas: looks. You can't deny the power of simple, uncluttered design; we'd far rather have a glorious, shiny, well-designed PSU that looks like it's floated out of NASA R&D than an overly utilitarian grey box any day; and we're sure you feel the same. This is where the likes of the stunning Hiper 730W Modular come into their own. Linked to looks is cleverness of design, and here you should seriously consider plumping for a modular cable system. It's tidier, it looks better, and you only have to plug in as many power cables as you need. It's a no-brainer. The final point is noise output, but this we don't need to be picky with today: nearly all the models here sport large, slow fans, and are quiet as mice.

## Enermax Galaxy 1,000W

**Price** £240
**Manufacturer** Enermax
**Web** www.enermax.com

**83%**

Like filling your car with aviation fuel, the Galaxy offers excessively more power than most will need, and it's very expensive to run, too.

| | |
|---|---|
| Full Load | ✔ |
| Efficiency | 80% |
| Safety cutout | ✔ |
| Overload | ✔ |
| Modular | ✔ |

## FSP Epsilon 700W

**Price** £112
**Manufacturer** FSP
**Web** www.fsp-group.com.tw

**65%**

Claiming upwards of 85% efficiency and achieving just 74%, the Epsilon's a compulsive fibber. No overload headroom to speak of, either.

| | |
|---|---|
| Full Load | ✔ |
| Efficiency | 74% |
| Safety cutout | ✔ |
| Overload | ✘ |
| Modular | ✘ |

## Q Technology Dustproof 60W

**Price** £85
**Panufacturer** QTechnology
**Web** www.quietpc.om

**83%**

Performed well in all tests. The matte black case is simple and effective. No modular cables though. And who *really* needs dustproof bearings?

| | |
|---|---|
| Full Load | ✔ |
| Efficiency | 75% |
| Safety cutout | ✔ |
| Overload | ✔ |
| Modular | ✘ |

# What's going on in there?

Your PSU takes magic electricity and turns it into *Warcraft*. But how?

**Modular socket board**
The modular cables are attached here to supply DC power from the PSU to the motherboard and components.

**+5Vsb Transformer**
This transformer supplies a very low level of power to the motherboard during standby. This current is used by the motherboard for LED lighting, CMOS battery recharge, and any other dormant requirements.

**Transformers**
When current enters the PSU from the mains, it comes in AC (alternating current) form. The transformers convert this to DC (direct current), which is then shunted to the capacitors to be modulated for use.

**PFC circuit board**
The PFC – or Power Factor Correction – logic board takes out-of-sync DC current waveforms, which are wasteful, and brings them into phase so that less power is lost. The better the PFC, the more efficient the PSU.

**Main capacitors**
These modulate the DC current from the transformers so the right amount is passed to the secondary capacitors.

**Secondary Capacitors**
One link down the chain from the main capacitors, the secondary capacitors fine-tune the current in order to provide a sustained, stable level of current to be passed down each rail to the components.

**EMI filter**
This gadget reduces the level of electromagnetic interference of the PSU. All devices which naturally broadcast EMI must, by law, be regulated in this way.

**Heatsinks**
These help to cool the MOSFETS, or Metal-Oxide Semiconductor Field-Effect Transistors. These components regulate the amount of current being passed through the PSU as demand rises and lowers.

**Power Guard**
This particular model of PSU (the Enermax Galaxy 1,000W) sounds an alarm when the overload cutout circuit activates. A press of this switch resets and restarts the PSU.

# The winner

## Enermax Liberty 620W

**Price** £98 **Manufacturer** Enermax **Web** www.coolergiant.com

**88**%

| | |
|---|---|
| **Full Load** | ✔ |
| **Efficiency** 78% | |
| **Safety cutout** | ✔ |
| **Overload** | ✔ |
| **Modular** | ✔ |

*top gear PCFormat*

Simple, clean design and reassuringly solid construction characterise the 620W version of Enermax's Liberty series, and it's a good-looking unit from the outset. It was one of the more efficient PSUs in our test – outdone only by it's big brother, the galaxy 1,000W (83%) and the gorgeous Hiper Type-R (62%). What's more, 620W of stable, safe power will provide a surfeit of the fizzy blue stuff even for a CrossFire or SLI rig.

The modular design with its sheathed cabling is very pleasing, though not quite as pretty or innovative (again) as the Hiper's chrome-ring clip system. You'd be proud to display it within a windowed chassis, and the huge, meaty heat-sinks visible inside the body are altogether confidence-inspiring.

Don't be swayed by overclocking potential if you're not going to use it; concentrate on what you need.

*"Top honours go to the Hiper PSU and the Enermax Galaxy 1,000W, for its unflappable performance"*

## After the sparks flew

**T**he biggest surprise of the test was the Be Quiet Darkpower Pro. We ran the power supply to its overload capacity, and it carried on working… just when the cutout circuit should've shut the thing down for safety's sake. So, we upped the voltage, which resulted in rising heat levels and a worryingly metallic whine… at which point, fearing for our safety, we aborted the test. Either the cutout was faulty, or there wasn't one there in the first place.

The other let-down was the most gorgeous PSU on test: the Hiper 730W Type-R modular. It just couldn't handle the specified 730W draw, managing a comparitively meagre 679 Watts before its cutout circuit kicked in and it wheezed to a standstill. In effect, it's more like a 630W PSU with an optional 10% overload capacity.

### ABSOLUTE POWER

The rest of the models worked pretty much as advertised – except for the FSP, whose efficiency rating fell way below the claimed 85% – it was actually 70%. Very naughty! Otherwise, the rest placed from 75-80%, which you can take as the standard. Any higher than this is definitely a bonus.

Top honours go to the Hiper PSU for its all-round glorious design – if not its ability to withstand the claimed 730W draw, and the Enermax Galaxy 1,000W for its sheer ability and unflappable performance in the face of extreme provocation. The Galaxy proved to be stable as a table and massively powerful, and should you put your money where your mouth is, it's probably the last PSU you'll ever need. Sadly, its sheer size and weight mean it's unsuitable for standard ATX cases where the PSU is mounted at the top of the housing. It requires a floor mount such as that found in Lian Li cases for safe installation; and seeing as most people barely need 500W, it's distinctly pricey for something with such a limited range of applications.

Our overall best choice has to be the Enermax Liberty 620W. It's not the cheapest PSU around, granted, but 620W is plenty for even a high-end SLI or CrossFire system, and it passes on every test going while offering good efficiency. **PCF**

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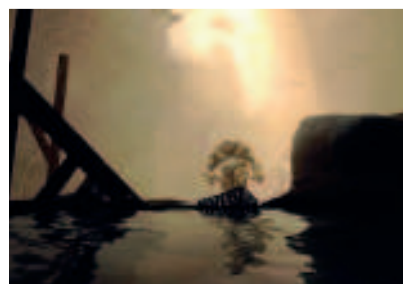


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## PLAY THIS



### Faces of War
Put on your war face, soldier, in this WWII RTS lark

| | |
|---|---|
| LMB | Select/action |
| MiddleMB | Move camera |
| MSWheel | Zoom |
| End | Direct control |
| V | Corpse highlight |



### El Matador
Bullet time a abounds in this *Max Payne* homage

| | |
|---|---|
| W, S, A, D | Movement |
| LMB | Shoot |
| RMB | Aim |
| LShift | Slowmo Jump |
| Tab | Slowmo |



### Bad Day L.A.
Zomboids, terrorists and air crashes. It's kicking off in LA

| | |
|---|---|
| W, S, A, D | Movement |
| LMB | Action |
| RMB | Talk |
| MSWheel | Select weapons |
| Space | Jump |



### Joint Task Force
Just remember, going to war in a forklift is fun

| | |
|---|---|
| LMB | Select |
| RMB | Action |
| MSWheel | Zoom |
| MMB | Rotate cam |
| ALT+LMB | Direct control |



### LEGO Star Wars2
Nipple-headed japery with all our favourite blocky heroes

| | |
|---|---|
| CSR Keys | Movement |
| I | Tag |
| K | Jump |
| J | Action |
| L | Special |

## REGULARS

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Code like a professional with our easy guide to programming in *Revolution Studio*.

**120 Happy holidays**
Use our special PCF edition of *Movie Edit Silver Pro* to brighten up your holiday videos

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Back up your hard drive with *Exact Image 6.0*, a simple to use disk copying utility

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*Innovative System Optimiser* your one stop shop for auto-tweaking your XP installation

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Make your very own geetar peripheral to accompany *Guitar Hero* clone *Frets on Fire*

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# Coding revolution
Create your very own multiformat Soduku game with our guide to the simple yet powerful *Revolution Studio* free on this month's coverdisc

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**on the disc**

**Remake your dour holiday videos**
Re-package your grey holiday snaps with some blue-sky thinking and our special *PCF* edition of *Movie Edit Silver Pro.*

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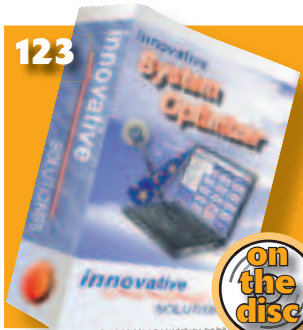
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**For a full list of everything on the disc please refer to the disc's interface. Controls for the games are listed there too.**

## Elenor Buchanen takes a closer look at Revolution Studio

**Revolution 2.7.3** runs off U3 smart drives, and won't take up much room alongside whatever files, software, PC settings or documents you happen to have stowed away, though you can of course install it on a PC as normal, too. Revolution Studio and Enterprise generate applications that comply with U3's security model, communicate with the U3 launch pad and handle contingencies such as safe application shutdowns when a drive is suddenly removed without warning. Just save your existing project and select the U3 options.

### GRAPHICS ARCHITECTURE
All definable objects, such as standard system controls such as windows, buttons and fields, as well as media elements such as QuickTime movies, can now be rendered using a rich variety of 20 blend modes, opacity settings and Windows-level transitions.

### ROLLBACK CAPABILITIES
Runtime has introduced the ability to roll back your installation of **Revolution** to a previous version, allowing you to try an update but change your mind later if you want to.

### QUICK TIME
**Revolution 2.7.3** is the only rapid application tool that allows you to compile for the Mac Intel platform, as well as all Windows operating systems back to Win95, Mac OS X, Linux and various Unix flavours.

### LEARN ABOUT REVOLUTION
Runtime Revolution has recently revamped its online support services and community to help its users make the best projects they can with the minimum of delay. The new revdeveloper.com website includes Revolution Wiki, a growing repository of developer knowledge, and direct feedback blogs from Kevin Miller, CEO of Runtime Revolution and Mark Waddingham, Director of Technology for Runtime Revolution. There is also a regular Revolution Newsletter and active Revolution Forums.

**Have your say** forum.pcformat.co.uk



**Take control**
*Runtime Revolution* contains all the editing tools you'll need to decide on the visual style of your game.

**Leave a message**
The Message box is used to add text and pop-up dialogs to the game.

**part 12**
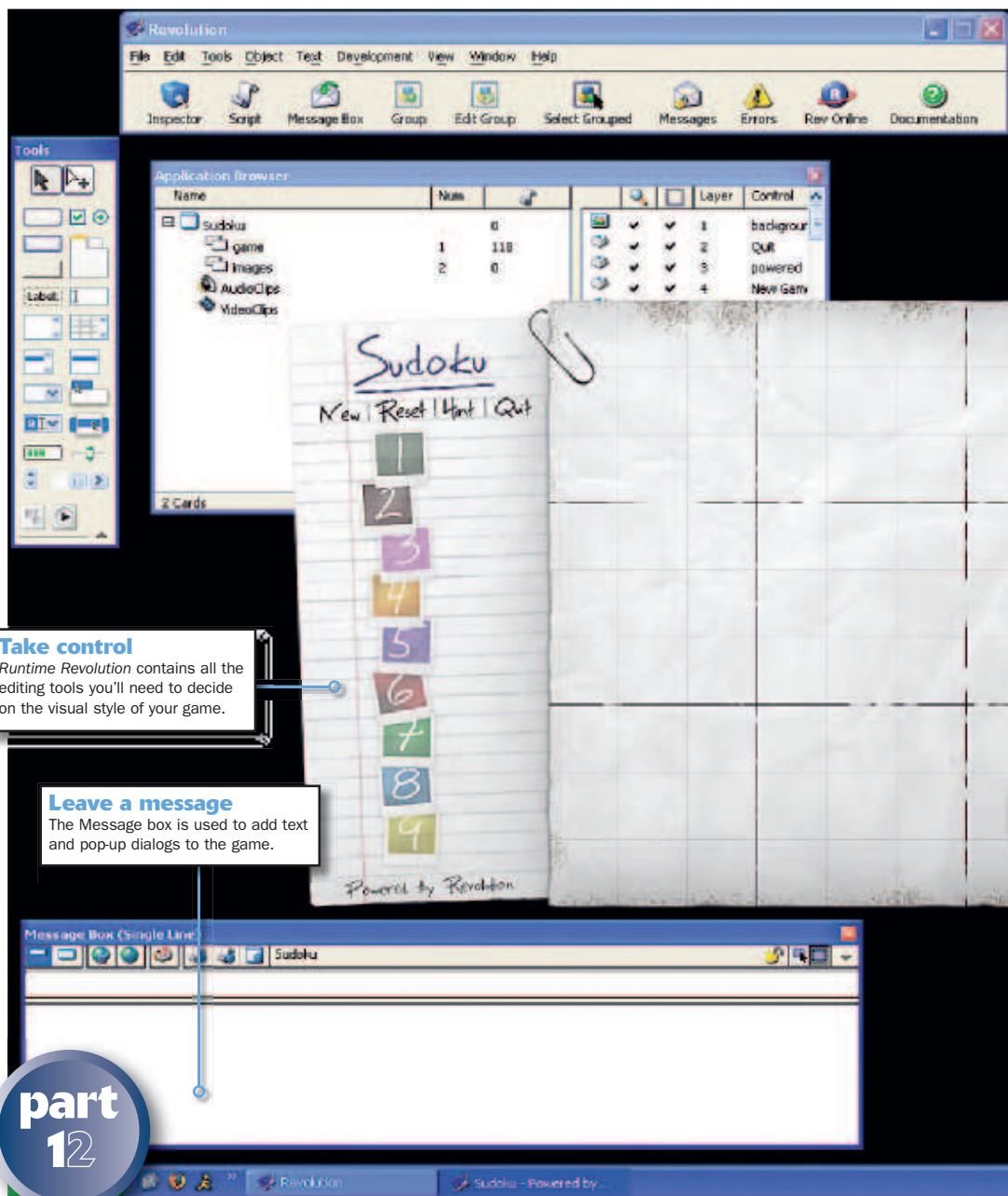
# Create your own Soduku game

Elenor Buchanen uses *Revolution* to code her own version of the number-juggling sensation

**R**evolution Studio (on this month's DVD) provides you with all the tools you need to create your own games: an easy to navigate intuitive development environment; all the graphical user interface elements you need, and an easily understood command language also called Revolution. One of the most important features of *Revolution* is the ability to build standalone applications for all the major operating systems, allowing you to code your application once and then use it on whichever platform takes your fancy.

Revolution also enables you to switch instantly between developing and live testing of
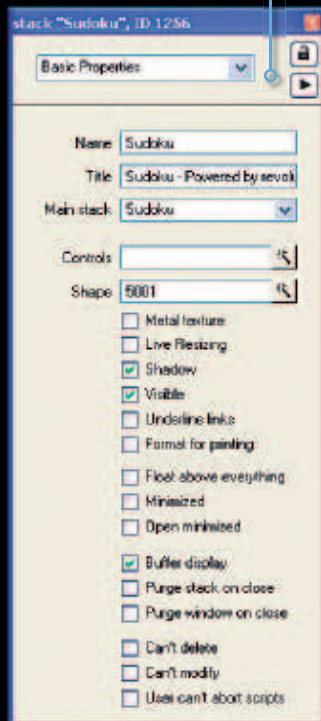
> "Revolution allows you to switch between developing and live playtesting"

your nascent game, ensuring that its development is rapid and not riddled with numerous irritating software bugs.

**LET THE GAMES BEGIN**
In this tutorial, we are going to build a Sudoku game. In the first part of the tutorial we will create a working Sudoku game which retrieves puzzles from a server, lets you know how many mistakes you have made if you need a hand, tells you when the Sudoku is complete. Because puzzles are generated by a CGI, also written in *Revolution* (although we won't go into that in this tutorial), your players will never get bored as there will always be a new puzzle available. In the second part of the tutorial we will 'skin' the game, making it more attractive and professional looking, and demonstrating how easy it is to create a great looking application in Revolution. This instalment introduces a number of features of *Revolution* including creating a simple

# Cracking the code
## Your first steps in the world of game design…
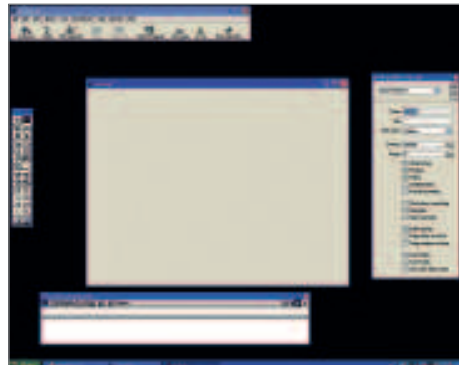


**1** First of all, launch *Revolution*. Go to the **File** menu and create a **New Main Stack**. Open the **Stack Inspector** from the **Object** menu. In the **Basic Properties** pane, set the name of the stack to **Sudoku**, in the **Size & Poisition** pane, set the width to 750 and the height to 550.
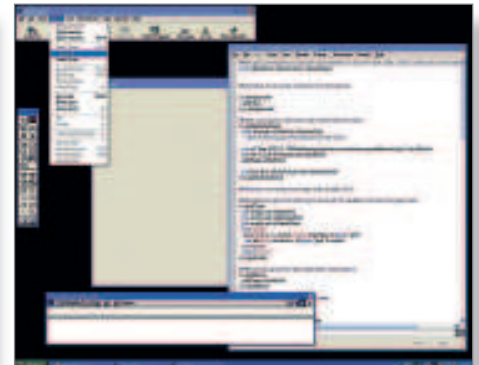


**2** Now set the card script. This is where you should place handlers that need to be accessed by different controls on the card or by the card itself. Go to the **Object** menu and select **Card Script**. Paste the code from tutorial file 1A into the script editor and click apply.
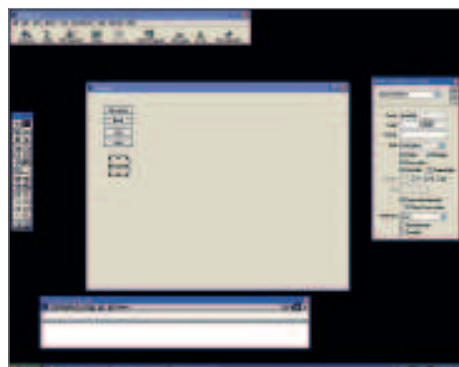


**3** Add four buttons to the card by clicking the button on the **Tools** palette then on the card. Set their names, scripts and positions as described in tutorial file 1B. Create a button to use as a template for the cells in the Sudoku grid. Set up as described in tutorial file 1C.
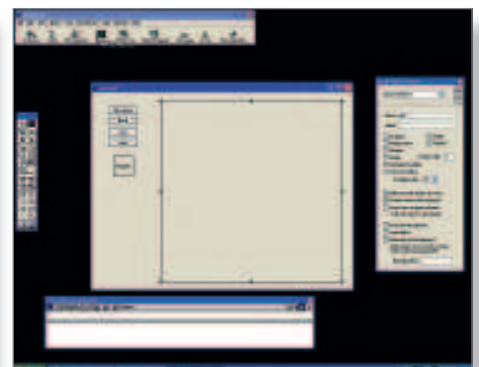


**4** Add a rectanglar graphic to the card, call it **border**, set its size to **513x513** and click the **Group** button in the **Menu Bar** to create a new group with the graphic in it. Name the group **Grid** and set its script as described in tutorial file 1D from **runrev.com/offers/pcformat**.
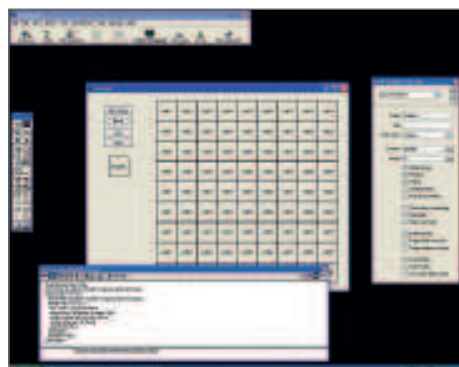


**5** Click on the second tab in the message dialog box. This list of options allows you to execute a multiple line script. Paste the script from tutorial file 1E in to the top window and then hit the **[Enter]** to run it. Finally, delete your template button.
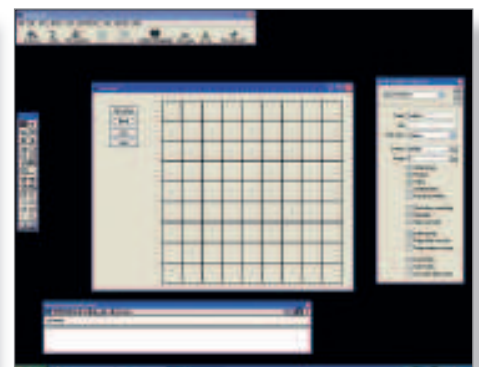


**6** That's it – switch to the **Browse** tool to try out the application. Save your stack, choose the platforms you want to build for in **Standalone Application Settings** in the **File** menu, choose **Build as Standalone** from the **File** menu and you're done.

# Turn the page for the rest of the tutorial…

# Finishing touches

## Giving your project a professional look
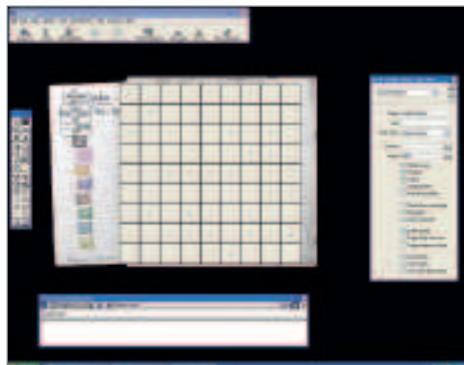
**7** Open your Sudoku stack. Go to the **Object** menu and add a **New Card**, naming the card **Images**. Then import all the images as described in tutorial file 2A. Go back to the first card using the **View** menu and follow the steps in tutorial file 2B to set a background image.



**8** For each of the buttons – New Game, Reset, Hint and Quit – resize and place each button to cover the relevant word on the background image then set their properties as described in tutorial file 2C. The button scripts remain the same.



**9** Create a button, place it over the **1** of the background image and resize it so it covers the area. Name it **no1** and set its properties and script as described in Tutorial File 2D. Do the same for each of the other numbers changing the name and button script as necessary.
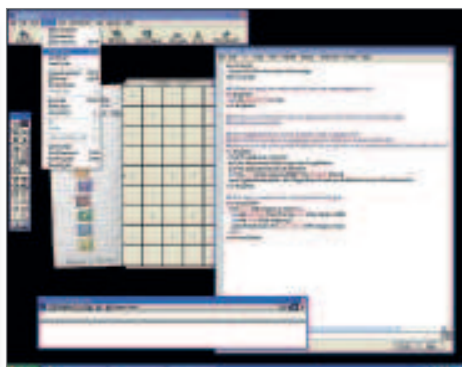


**10** Open the Card Script you've been working on up to this point, and replace it with the script from tutorial file 2E. Open the Object Script for group **grid** and replace it with the script in Tutorial File 2F. Patience – you'll be furrowing your brow over a line of digits before long…



**11** Place group **grid** over the correct part of the background image. Go to the second pane of the message box and execute the script in tutorial file 2G. Choose the Browse tool, click New to see a puzzle appear and try dragging some numbers on to it.
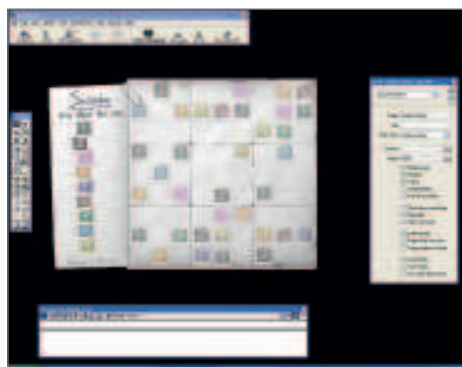


**12** And that's it, you have a great looking application which will let you play Soduku on any operating system you care to mention. Try it out for a while, and then all that remains is to build it into a standalone and you are ready to play.

user interface using basic GUI elements that have a native appearance on whatever platform the game is eventually played on, retrieving data from a CGI on a server, using drag and drop functions, adding images to your program and more.

*Revolution Studio*'s easy-to-use development environment, debugging and tracing tools and comprehensive documentation will make development of this game surprisingly and easy. Once it is done you can build standalone applications, that need no other software installed to run, at the click of a button.

This tutorial should give a good grounding in building interfaces and coding in *Revolution Studio*. Although this is a relatively simple program it is one that could be extended in many ways and from there go on to other projects using *Revolution*, if you're into the heavy stuff. The app has many features that allow you to create useful and powerful applets based on existing tech, including Unicode, XML and SOAP, and works with the most popular multi-platform databases: *MySQL*, *ODBC*, *PostGres* and *Valentina*. You can also build your own highly customised, automated add-ons.

Before starting the tutorial, you should download the tutorial files from **www.runrev.com/ offers/pcformat**. These have extra information and scripts that you will need to refer to as we work through the tutorial. **PCF**

## "Revolution Studio should make completing this project easy"

**Andrew Sutcliffe** discusses the relative merits of transitions and why you shouldn't overdo them

There's absolutely no doubt that using certain transitions – that is, the process of moving from one shot to another – can be achieved in many different ways. There are wipes, fades and cuts to think about and then a huge variety of different types of transitions. Sometimes they're appropriate. For example, it looks pretty good if you have a point-of-view shot of a door opening and when that door begins to open, a transition makes that shot appear to open out into the next shot.

But try not to go overboard with things like this – use them sparingly because the simple fact is that a movie should try to engage its audience with its central narrative, not try to make people dizzy by including as many different transitions as possible. The vast majority of times, the most appropriate transition is a simple cut. It works for Hollywood and it'll work for you too – and remember that using a whole load of different and overly complex transitions will really put a strain on your PC when it finally comes to rendering your finished movie. The simple advice is that you should keep it simple – fancy transitions, loud music and misuse of effects will turn an audience off, however good the story you want to tell happens to be.

Add some Lucas-inspired wipes to your video with Movie Edit Pro 10.

**Have your say** forum.pcformat.co.uk

# Produce better movies

**P**CFormat's mourns the end of Summer. Fortunately, we've found a way to take our own grey holiday videos and turn them into such azure-skied beauties that even Production Editor Alex can sit through them without swearing. Let us tell you, that's impressive. James went surfing, Mike went motor racing and Dave went flying. Never let it be said that the *PCF* team aren't a group of adrenaline junkies living on the edge. But how did we make our poorly shot footage of it watchable?

We've teamed up with German software giant Magix to bring you a special version of *Movie Edit Pro 10 Silver*. Magix has provided us with an exclusive bundle of video wizardry so you can apply all sorts of effects to improve image quality, and therefore the viewing experience of your delighted audience. You can add audio as you'd expect, but you can even add effects to your audio, in a similar way as you might find on some leading audio editing programs. Read on to find out how to turn dull-as-ditchwater videos into Hollywood-aping epics...

**A** The preview pane and transport controls give you a view of individual files – whether they're video or pictures. It's here that you'll notice the different effects you'll want to add to make your videos look all shiny and brand new. Pressing the

**Record** button brings up the video capture dialog box, offering a variety of sources from which to import your video, or you can simply drag and drop files. The button to the left of the **Transport** controls switches the preview to full screen mode, for that all important bigger picture.

**B** Files and Effects can be easily accessed in this large pane. Use the drop down to navigate to files you already have on your PC. If you already have your footage saved somewhere on your computer, it's a good idea to get everything you think you'll need – video files, still images and music tracks – and pop them all into the same folder. Then simply navigate to this folder using the drop-down and you can see all of the files you need all in one place.

**C** This useful strip of buttons provides you with the ability to toggle the Timeline view on and off. It also gives you quick access to a lot of the editing controls. As you've no doubt noticed, we've employed the timeline view because we find it easier to work that way – it's possible to see all of the elements of our movie in a way that's familiar to us. Some other features on offer from these buttons include duplicating, deleting and setting chapter markers for your masterpiece.

## Using Movie Edit Pro 10

### Get more from your digital video footage
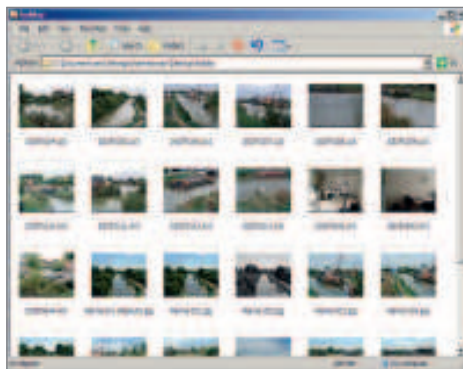


**1** If you're working with files you already have on your PC, your first task should be to group them all together in the same folder. If you've got an audio track in mind, that's great, but the important ones for now are the video and still-image files.
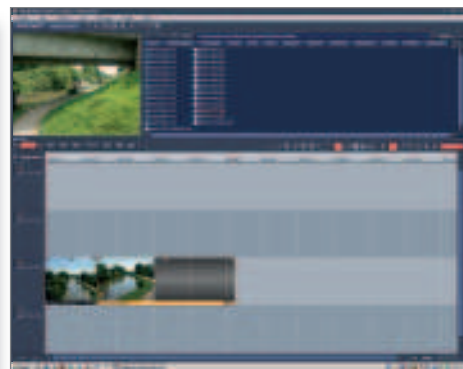


**2** Navigate to your folder full of wonderful movie-making ingredients. It's time to start splicing clips together. We'd suggest you switch to timeline view, so click the button on the right and drag the video files into the first track. Any audio will add itself to track two.

## "You can apply loads of effects to improve the overall quality of your movie"

**E** The video timeline shows you the clips you've added to your movie, in the order you've added them. You can drag them around to rearrange them, change the length of individual clips by simply dragging the right-hand edge and you'll get an overall idea of the total length of the movie. Underneath your clips you can see all of the effects that have been added to it. To add effects, simply click on the tab you're interested in (to the right of the file browser in the top right) and then drag these onto the parts you wish to enhance.

**D** The thin red line at the very edge here can be dragged to give you a fast preview or to enable you to quickly navigate to any point in your movie. Drag by clicking on the very top, outside the timeline to avoid moving your files around.

**F** The first two tracks of our time line are taken up by our original video footage with the audio for that footage occupying track two. In track three we decided to add some of our snapshots which were taken on a different day to the

footage and when the weather was much brighter. That's why we added the saturation effect to the video – it will improve the look of the finished product and make for a more interesting movie

**G** Track four on our time line is the one we've used to add some music. It doesn't have to be music though – you can set up a mic, click the record button, select Audio and add a commentary track if you want. Bear in mind, however, that the right music will engage people and the more you can do that, the longer you'll hold their attention, meaning they won't get bored. And if you have a particularly boring voice… **PCF**



**3** Select individual clips by clicking them – the first frame will appear in the preview window. Change the length of these clips by dragging the slider on the right towards the beginning of the timeline. You can duplicate shots if you need to go back to certain scenes.
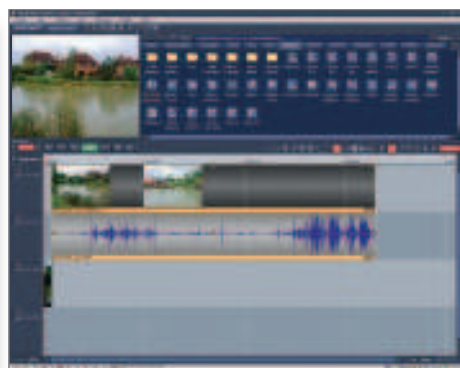
**4** Add effects and transitions by navigating to the correct tab at the top. Clicking on any of the Audio or Video FX will give you a preview based on the clip already in the preview pane, so you'll know what adding the effect will look like. To add, simply drag onto the clip you wish to add to.
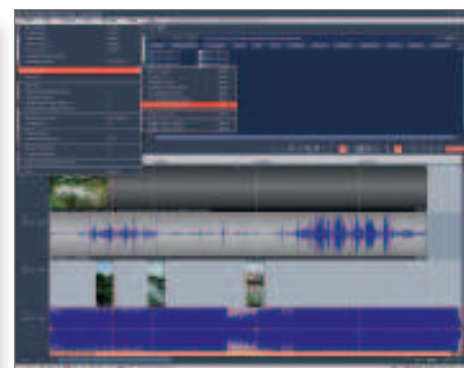
**5** Add audio in the same manner. You can then export the file to a variety of different formats, including WMV, QuickTime and MPEG. To do this, simply select the **Files** menu, then follow the **Export Movie** option and select your desired output format.

# Image is everything

Dave James plays it safe with *Paragon Exact Image SE*

**B**ad things happen to good people; it's one of those constants in life. Limbs break, mobile phones get lost and hard drives fail. Before you start complaining about such events, however, you should always look within yourself to see if there's anything that could've been done, if not to prevent, then at least to minimise the disastrous consequences.

This is where *Exact Image Special Edition* comes in, it's not going to mend a broken arm, but if you've made a simple backup of your hard drive then related problems can be quickly rectified with this handy little app. If you have an older, lower-capacity hard drive hanging around, archiving your boot drive onto it will save you hours of stress, should said primary drive die horribly in the future. If not, creating a Backup Capsule on your existing device will allow you to save the archive into a protected partition to rectify all but the most catastrophic collapse.

You'll need to register *Exact Image* in order to install it, but it's all free and very easy. You just need to submit a valid email address and your name and a serial code will be generated just for you. Because you're special. **PCF**
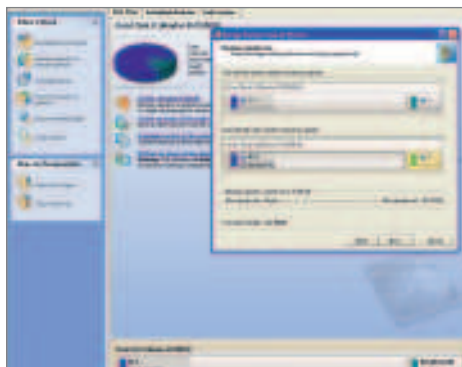
**1** Your first task is to create a Backup Capsule, the protected partition where the archives are saved. The first time you boot up *Exact Image*, you will be prompted to create one and the wizard will take you through it. *Exact Image*'s compression routines ensure the capsule doesn't need to be the size of the data to be stored.
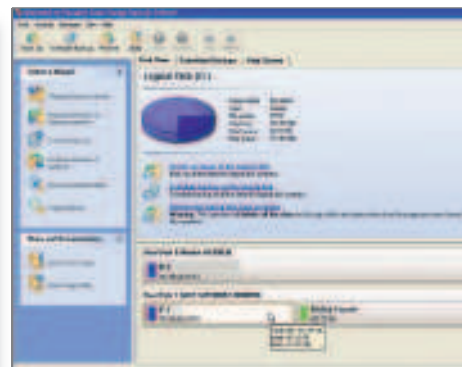
**2** To create an image of a particular drive, **left-click** on the device you want copied, then from the **Disk View** tab in the main screen select **Create an image…** of either a partition of the drive, or the entire disk as appropriate. Click on **Next** and choose what specific information you want stored in the archive.
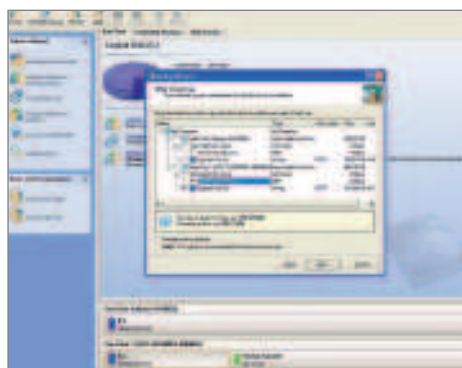
**3** Here you can choose to store multiple partitions in the archive as well as the Master Boot Record (MBR). Archiving the Master Boot Record means that when you come to restore the data, you will be able to recreate the drive as a bootable device, rather than just copying just the information.
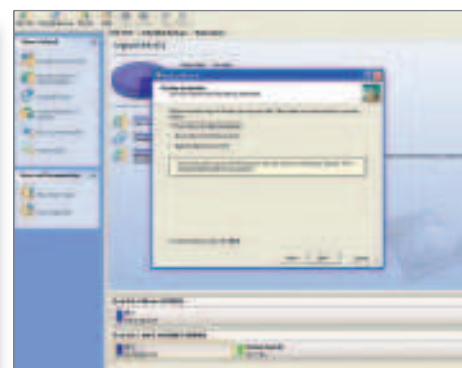
**4** Once you've selected which parts of the drive to archive, you need to choose where to send it. The default setting dumps the archive in the Backup Capsule, but you can also save it to another drive on the system or burn smaller archives to optical media. With that done, you're ready to go.
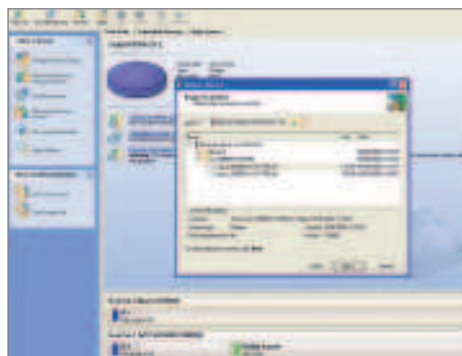
**5** Restoring an archive is just as simple. Select **Restore an image…** then choose which archive you want to to restore. If you're attempting to restore a boot drive, you will need to restore the Master Boot Record first before doing the same with the data partition, otherwise the restoration will fail.
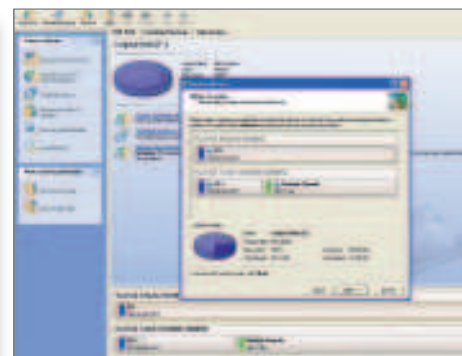
**6** Now select where you want the archive restored to. To cope with different sized media, you can also opt to resize the restored partition to fit the entire drive you're copying to, which is particularly handy when upgrading from a small boot drive to a larger. Click **Next**, confirm and you're all set.

## Upgrade

Along with your serial code you receive a 20% discount on your next purchase at Paragon's online shop for seven days after registration. See if anything takes your fancy from

**www.paragon-software.com**

## ON THE DISC

**Belarc Advisor**
Now you've got your hard drive safely backed up should disaster strike, it might be worth checking on the rest of your system for possible problems with this system profiler.
**www.belarc.com**

**XP Syspad**
Should something go horridly awry while you're restoring the hard drive – not that it should, of course – this handy app can divulge your XP product key if you've lost it along the way.
**www.xtort.net**

# Clean up your registry

James De Vile polishes XP's brain with *Innovative System Optimizer*

**E**very program you install leaves its mark in Windows' registry, even when it's gone. If you're not one to reinstall Windows too often, you'll have noticed that in time, things don't work quite as fast as they used to. We've looked at optimising software in the past, but this one's got a killer feature – the One Button Optimizer – or, as we like to call it, the 'Make Windows Good Again' button. One click and the app sets about cleaning and defragmenting your registry, scanning your disks for errors and, should you require it, covering any tracks. This program's no one-trick pony, either; we'll show you how to set it to auto-optimise your RAM, reclaiming those lost megabytes after you close an app. **PCF**

## Upgrade

If you like the improvements the Memory Optimizer provides, check out the latest version, 2.3. This new edition comes with an improved memory manager and a host of other tweaks to keep your system running.

www.innovative-sol.com

## ON THE DISC

**Auslogics Disk Defrag**
Having gone through your PC's error-riddled registry, the next logical step is to tidy up your PC's hard disk. This app will do a far more thorough job than XP.
**www.auslogics.com**

**Advanced Uninstaller Pro**
Having trouble removing pesky programs from your machine? Fear not, you're in good company. Say a tear-free farewell to digital flotsam with this disk-scrubber.
**innovative-sol.com**

**1** Once you've grabbed the app off this month's disc, you'll need to register to receive your free serial number. Click on Claim your free activation code and fill in the form. You'll need to wait a day or so to receive a code, but until the app is fully functional for 30 days once activated so you can crack on with the walkthrough.

**3** Once you've identified which programs and areas of the registry you'd like to concentrate on, click on **OK** to return to the main screen. You can now click **One Button Optimizer** to trigger all the options you just selected. Click **Start** to begin – you'll need to restart your PC after the program has done its work.
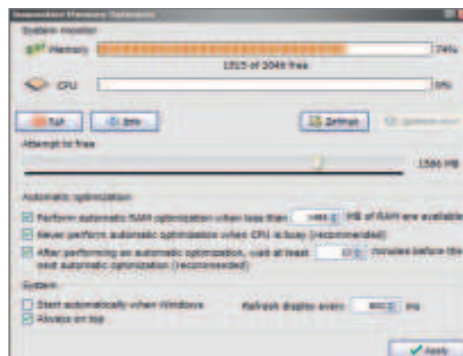
**5** Click on **Settings** again to hide the options dialogue, and then click on **Optimise now!** If you restarted your machine recently, you won't see much outward change, but after opening and closing a host of other applications you'll often see a noticeable difference in speed, and the PC's stability should have improved notably.

**2** Ignore the other options for the moment – we're going to use the **One Button Optimizer** to tidy your PC. First, you'll need to click the **Settings** button, and then choose which items you want to clean. If you're as paranoid as us, tick everything. You can also choose specific apps – look down the list and tick anything you've installed.

**4** Open the program again and click **Memory Optimizer**. This extra tool will help reclaim RAM that has been reserved by a program you're no longer using. Select the **Settings** button, and tick the **Start automatically with Windows** box to allow the program to constantly optimise your memory in the background.

**6** Finally, we'll stop any unwanted applications loading at startup using *System Optimizer*'s *StartUp Manager*. If you discover that your PC's been hanging on to a program you don't recognise, try clicking on the **Show more info** box to view a description. Click **Disable** on anything you don't use regularly.

**James Carey** wants sweet harmony, not Megadeth

If you fiddle with electricity, you put yourself in harm's way, and void a couple of warranties as well. But don't worry – the chances of receiving a shock from a USB are minimal. See James in action with his axe at **blog.pcformat.co.uk/page/pcformat/20060816**.

# Make your PC rock

**G**uitar Hero is a PS2 game like those *Dance Mat* monstrosities clagging up arcades nationwide, and includes a proprietary guitar peripheral. There's no official PC version just yet, but we recently discovered an awesome open source equivalent called *Frets on Fire*, located at **louhi.kempele.fi/~skyostil/uv/fretsonfire**. This cool little app lets you import tunes from your own MP3 collection and add the finger work to them (or download ones others have made without the copyright protected music file, which you can then add from you own legitimate MP3 collection).

Within an hour of finding *Frets on Fire* we'd already started building this USB guitar. It was the natural thing to do. OK, it's *far* easier to buy a PS2 controller-to-USB adaptor and plug in your *GH* peripheral but where's the fun in that?

Instead we've taken an Early Learning Centre toy and an old Logic 3 joystick and combined them into this chimeric beast. **PCF**

Hitting the notes is much easier with the Toytar than your PC's keyboard.

# Guitar heroics

## Let's break some toys…
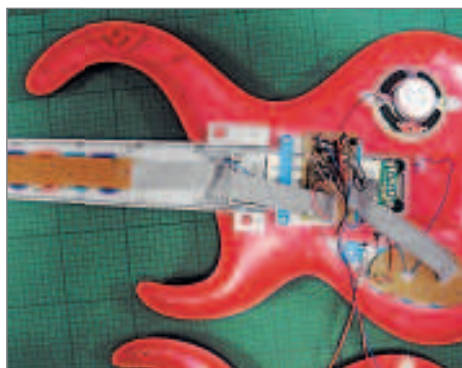


**1** Unscrew the back of the toy and take a look inside. We're hardly using any components from in here, just the fretboard PCB (complete with its handy buttons) and a few wires. Cut the wires from the speaker, and the battery compartment.
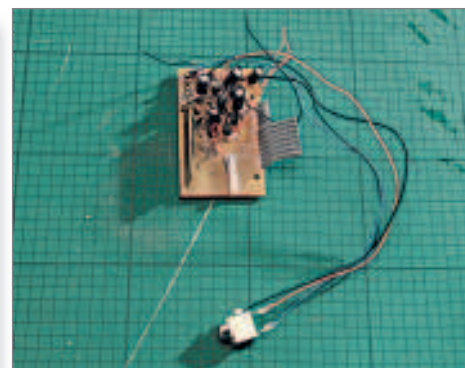


**2** Snip the three grey ribbons away close to the central PCB edge. We'll need to connect the wires from the fretboard ribbon later. Cut the wires from the tremolo switch close to the PCB too. Unscrew and remove the now-ribbonless, wireless, central PCB.



**6** Take a section of Terminal Block and screw in the wires you've just cut from the joystick like so. You'll need to strip the ends of the wire for the connections. Place the PCB from the joystick with the wires and Terminal Block attached into the body of the toy guitar.



**7** Cut down the length of the ribbon from the fretboard so the wires are individual. On the reverse you'll see a tracery of wires. Find the one trace that touches all of the buttons on the fretboard. This leads to the ribbon wire that must be connected to the master wire from the joystick.

**Have your say** forum.pcformat.co.uk

# How it all fits together
## Those guts in detail…



**Tremelo connection**
We're using the tremelo switch as our strumming button. The two connections are wired to the second terminal block (with serial connections to the grey master wire) here.

**Insulation and isolation**
Any extra wires should be taped to avoid accidental connections when the case is closed. We've used foam and anti-static bags to keep it away from the metal casing.

**Main connections**
The quickly adjustable terminal block is ideal for our experimental wiring. The button's wires from the joystick meet the ribbon wires from the fretboard here.

**Extra connections**
There are a tonne of other buttons on the toy guitar and also some spare control axis from the stick. This is optional (and thus not listed in the steps below) but you could always wire these up too.

## ON THE DISC

**Frets on Fire forum**
This project is pretty pointless without *FoF*. Check out what other users are up to, and find new tracks, at the game's online home.
**www.fretsonfire.net**

**Joy2Key**
A handy app if you're having trouble mapping some of the controls. People using the real *Guitar Hero* peripheral and a Playstation 2-to-USB adaptor dongle will have to use this application in order to get *FoF* working.
**www.joy2key.com**

**Guitar Hero Track Importer**
This app will import all the tracks and notes from *Guitar Hero*. You'll need to be a legitimate owner of *Guitar Hero* to stay on the right side of the law, though…
**www.nukular.ch/foftools**

**Audacity**
A great app for converting music to *FoF*-friendly OGG format. The *FoF* community gives out fret note files and you supply the tune in OGG fomat underneath.
**www.audacity.com**



**3** Take the joystick apart, and you'll find that the wires run through plastic that can't be opened without a cutting tool. So, take a deep breath, and snip the wires instead. Cut near the top PCB button/trigger cluster so you have plenty of wire to work with attached to the lower PCB.
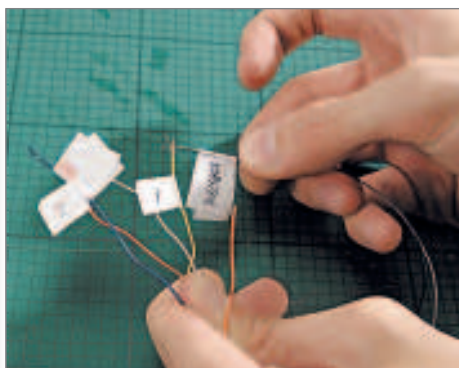


**4** One of the wires we've just snipped on the joystick is the 'master wire'. In our case it was the grey one, but your model may differ. Touching any of the other wires to this master wire will make the joystick think you're pressing a button or hatswitch. We only need 6 buttons in total.
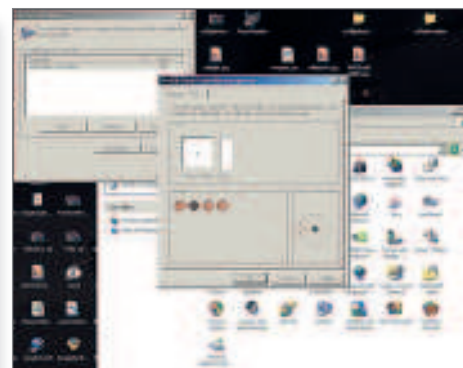


**5** Work out which wires trigger what buttons by plugging the USB cable into your PC and getting the Control Panel's **Game Controllers** window up. Now touch each wire to the master wire and note down what results they give. We actually labelled the wires **Pitch**, **Button1** etc.
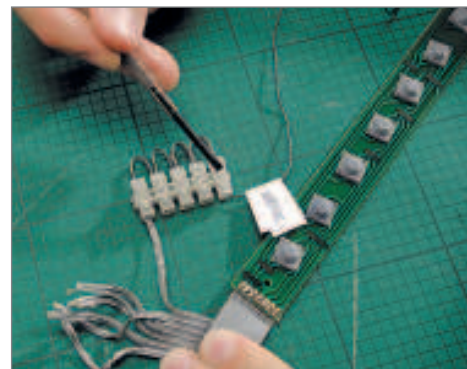


**8** Cut another section of terminal block and create a series of connections with small wires as shown. Connect the master wire (in our case the grey one) from the joystick to one end of this set. Connect the wire from the ribbon to the other.
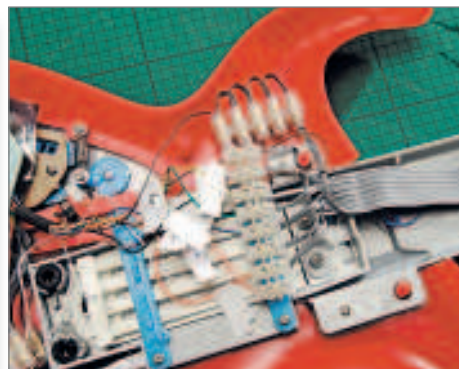


**9** Now the fun bit. Connect the wires from the fretboard ribbon to the terminal block with the joystick wires. It doesn't matter if the sequence of buttons on the fretboard is out of sequence with the buttons on the joystick, as *Frets on Fire* lets you customise the controls.



**10** Reassemble the case, ensure that there are no metallic contacts present that could short the circuits. We used foam packing and cut-up static bags to keep it all snug and separated. Configure the controls in *Frets on Fire* and you should be ready to rawk!

# Streamline your OS

### James De Vile cuts Windows down to size with *nLite*

**A**t some point in any Windows users' life, it will become apparent that your once-proud PC's performance has slowed a little. The best way to restore the machine to full working order is to format and reinstall XP. This usually means spending an evening gazing at Windows' installer, as it inaugurates numerous components, occasionally firing off questions regarding product keys and time zones, followed by the post-install juggling of driver discs and Service Packs. If you're constantly reconfiguring your PC, every minute saved is a blessing

Now, thanks to Dino Nuhagic's *nLite* software, we can create a pre-patched Windows install CD; something Windows is notoriously poor at. It took less than 20 minutes for our new desktop to appear using our new boot disc, and user accounts, drivers, desktop themes and preferences were all preconfigured, patched and ready for action. Absolute bliss – ironic, since Windows' Disney-esque wallpaper of the same name was the first thing to go.

You'll need the latest version of RyanVM's update pack (**www.ryanvm.net/msfn/updatepack. html**) and any drivers for devices such as your graphics card, wireless networking card and motherboard. If your original Windows CD is pre-SP2, you'll need to download Microsoft's Service Pack 2 install package, available from the Microsoft website. **PCF**

## ON THE DISC

**nLite**
Put your Windows CD under the knife; banish any of the operating system's least-desireable components, integrate drivers, customise your desktop and manage Microsoft's software updates – all in a few easy clicks.
**www.nliteos.com**

**Ahead Nero 7 Premium**
Nero 7's a renowned all-in-one media creation package, supporting CD/DVD authoring, ISO image burning, backup, video and audio editing and photo album creation, not to mention numerous other useful media-centric features.
**www.nero.com/nero7/ eng/nero7-demo.php**

**Bootskin**
Are you consumed by an urge to customise Windows even further? Replace that dreary Windows XP boot screen with your own formidable design using this simple, free application from those creative types over at Stardock.
**www.stardock.com/ products/bootskin**

**VLC Media Player**
Praise be! With this program, you'll never have to install another dodgy codec pack again – VLC already has everything your computer needs to play even the most obscurely encoded media file, and couldn't be simpler to use, either.
**www.videolan.org/vlc**

**1** First, copy the contents of your Windows XP CD into a directory on your desktop. Open *nLite*, and click **Next**. When prompted, point to your new directory. For the purpose of this tutorial, tick boxes **two to five** and **nine**. There are other options for avid tweakers, but these are registry hacks that can be trifled with later if need be.

**2** If you're integrating Service Pack 2, point *nLite* to the location of the SP2 install file you downloaded. Next, you'll be asked to integrate any update packs; click **Insert** and find RyanVM's update pack on your desktop. Adding this brings your CD right up to date with Microsoft's updates, including the latest DirectX release.

**3** Now to locate the .inf driver files for any drivers you want to install. If the drivers conform to Windows Driver Model (WDM), you'll find them in their respective directory. This adds the drivers to the CD, so there'll be no scrabbling for discs once XP is installed. Here, we've located our ATI drivers, ready to add to our disc.
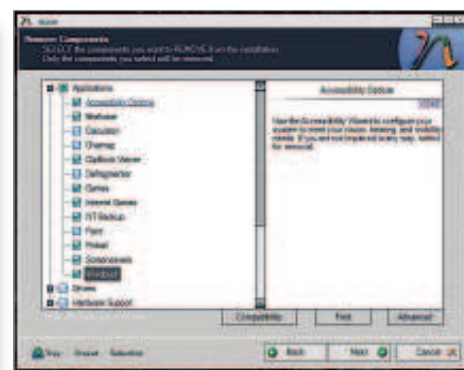
**4** Here's your chance to slim XP down. Don't use *Netmeeting* or *Windows Messenger*? Remove them from your CD. *Firefox* fan? One click rids you of *IE*. Similarly, if you added your own graphics drivers in step four, you can safely remove Microsoft's. Don't remove anything you're not sure about, especially if it's highlighted in red.

**5** This page lets you fill in your information. The more boxes you fill in, the less chance there is that Windows will have to ask during the install. Enter your product key, name, password, workgroup (just use **MSHOME** if you're unsure), timezone and so on. Click next to begin the slipstreaming process; it'll take a few minutes.
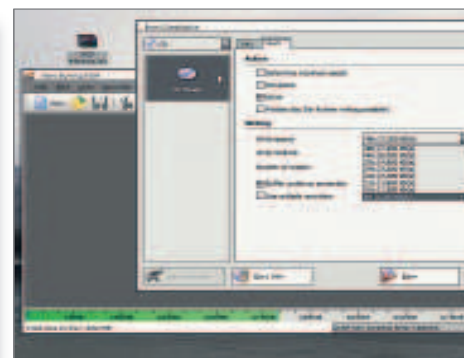
**6** Hit **Next** again, select **Make ISO** and choose a location for the CD image. Once created, open your burning app – in *Nero* 7 (you'll find the demo on this month's DVD) select **Recorder➔Burn Image** and find your ISO file. Testing your new CD on a separate partition or *VMWare* first, as you may need to go back and tweak settings.

**Luis Villazon**
DISLIKES THE SYSTEM TRAY

# AskLuis...
## ALL YOUR PC QUESTIONS ANSWERED

### Free technical support

Got a problem with your PC? Write to Luis, or better still drop him an email. Assuming you can get your PC to work, that is…
pcfhelpline@futurenet.co.uk
PCF Helpline
30 Monmouth Street
Bath, BA1 2BW

# Help is at hand

The Wisdom of the Orient is all very well, but it won't fix your PC. You need The Wisdom of Luis Villazon for that

Mixing fluids with your PC's components is pretty unwise.

### PSUs
### Keyboard with a drink problem

**Q** A few days ago I spilt half a pint of lager onto my computer (purely accidental of course) and splashed lager onto the front face panel and a little on the top front of the case. I cleaned it up the best I could and thought nothing more of it… but now my machine has started rebooting itself at random!

I have noticed the sequence in which this seems to occur. It reboots twice while trying to load Windows (XP Home Edition), on the third attempt it is successful but then reboots 10-20 minutes later! I did notice, however, that the hard drive now has a few segmentation faults. Could it be this that is causing my machine to reboot? Or could it be something else, such as the PSU or motherboard?

**RICHARD WILSON**
ricardo_j_wilson@hotmail.com

**A** Spills are accidental by definition. That you took the trouble to explicitly point this out to me hints at a dark and alarming insecurity. Do you, for example, normally douse your PC with some *other* fluid? Do you habitually fling beer at everything in your house *except* for your PC? Did you mean to use a Bacardi Breezer? I'm frankly reluctant to peel back the flap of wet, dirty canvas that hides your tarnished soul from the rest of the world, but bear in mind that, without knowing what festers within, any diagnosis I give is going to be superficial at best.

Taking your immediate physical symptoms into consideration only, I consider it unlikely that splashed beer would cause periodic reboots. The biggest danger from a liquid spill is short circuiting. This can theoretically cause some components to receive too high a voltage and thus blow them, but more normally it simply stops them working until they dry out fully. I have spilled innumerable coffees onto keyboards beyond number, and a few years ago I dropped a hard disk into a bucket of water (purely accidental of course) without managing to kill it. Soaking a powered-up motherboard is riskier but the failure mode is catastrophic – it will either work fine or not at all.

Furthermore, your reboots don't sound random at all. To fail twice and then start on the third boot consistently suggests that the power supply isn't stabilising the voltage to the motherboard quickly enough. This isn't going to have happened just because you've been a bit free with the Fosters. It could be caused by overheating from the layers of dust adhering to the sticky beer residue, I suppose. But this lies at the very aphelion of possibility and I'm still going with the PSU.

### DISK DRIVES
### Reliable media

**Q** I have been using external solid state media drives (200 and 300GB) as backup devices as I cannot afford

backup tape units myself. And I was wondering how good a backup format they are in reality. Can they take a drop or two? Or are they wiped by anything else like magnetic or power surges? I know a lot of people who like me have everything backup-ed up on these and it would be a pain to lose everything due to a drop.

**BRIAN TONER**
bob101010@gmail.com

**A** Backup-ed is the archaic form that long ago fell into disuse, along with disketh drive and ye olde motherboarde. The modern usage is "backed up".

Witheringly patronising grammar lessons aside, tape backup is yesterday's news. Tape is extremely slow, can only be accessed sequentially, it's slow, uses proprietary formatting and access software, it's slow, can't be used to boot from and it's slooooooow. It has only one advantage: It's cheap. Even its cheapness isn't terribly significant until you are backing up at least half a terabyte. Large corporate ITS departments use tape because they *have* to, not because they want to.

To your actual question then; flash storage or hard disk? To consider physical ruggedness alone, flash is the unquestioned winner. Hard disks have moving parts than can jam or wear out; fragile glass platters that can smash and a hermetic seal that can perish in heat, become brittle in the cold and corrode when exposed to chemicals. Flash is just silicon and resin. I have nailed flash memory cards to a tree and still managed to get the data off them afterwards. (Hey – as Nietzsche once memorably said:

"When all you have is a hammer, everything looks like a nail.")

Where flash storage generally struggles over hard disk is capacity, speed and price. If you already have 300GB drives that can back up your entire hard disk, we can discount capacity and price. And since you can presumably make an entire system backup overnight, I really wouldn't worry about the speed either. In some ways then, your solid-state backup is actually a deluxe solution but it has one disadvantage that would stop me from choosing it if I were starting from scratch. If you back your internal hard disk to an external one, your backup system can be used as a slot-in replacement if your original drive ever fails. Flash is too slow to use as your main boot volume, so your backup drive is only ever going to be a backup drive. When your hard disk dies, you'll need to order a replacement and wait for it to arrive before you can restore your backup to it. That could leave you without your PC for a day or two. With a hard disk-to hard disk backup, you can be up and running again in 10 minutes.

## OS GLITCHES
### Where is my beep?

**Q** This is not a big problem, but a damn irritating one. I do not have any event sounds any more. It greatly saddens me that I can't hear the wonderful startup sound that every Windows user should be able to experience. I can still play music, just no event sounds. My OS is Windows XP with Service Pack 2 installed. My antivirus program, *AntiVir XP*, recently alerted me of the W32/Jeefo virus, and I don't

know if this has anything to do with the sound problem, but after removing the virus, it seems that the event sounds just stopped working. Please may I tap into your source of infinite wisdom?

**FRANCOIS DE VILLIERS**
franniedevilliers@telkomsa.net

**A** Jeefo doesn't specifically disable the system sounds but it can corrupt Windows files, and I suppose it's possible that it has hit one of the DLLs that handles this. More likely it is just a coincidence and the problem lies with your sound card drivers.

Some sound cards can occasionally and spontaneously mute the volume on one of the channels. You can see if this is happening by opening the Volume Control applet (double-click the speaker icon in the system tray or use Control Panel). Since wave files are normally played on a separate channel from CDs or synthesised sounds, this might let you play some kinds of sounds and not others. The temporary fix for this is usually just to reboot the machine. Reinstalling and/or updating soundcard drivers provides a more permanent fix.

I dimly remember a time when the Windows start-up noise was mellifluous to my ears, or at least not like a steel rasp on the exposed nerve-endings of my soul. But after 16 years of rebooting PCs every half hour, that blessed state is now a thing of the past. All my PCs are now hacked to replace Windows XP Startup.wav with three seconds of blissful silence.

## STARTUP
### Tray trouble

**Q** For some reason all the icons that appear next to the clock on startup have decided to disappear. There is only one icon remaining, and that is the one that allows me to alter the sound effects for my onboard soundcard. This appears to have happened when I installed *Real Arcade*. Is there a way to bring back the icons?

**BARRY EVANS**
evans_barry@blueyonder.co.uk

**A** You know how some people (those who work in gelatinous corporations that don't actually make anything except money and *PowerPoint* presentations) have rows and rows of little gonks and self-adhesive pom-poms with googly eyes along

## Bedside table
### This month, Luis is reading…

#### World of Warcraft Dungeon Companion
**Authors** BradyGames  **Publisher** BradyGames  **Price** £16.99
**ISBN** 0-7440-0699-6

There was one thing missing from the original BradyGames guide to *WoW*: for the instances. Every instance and outdoor raid is here, with maps, boss strategies and loot tables beautifully presented. The guide is only current as far as patch 1.10, but even if you hit level 60 today, it will be several months at least before you have fought your way through all the dungeons.

This book is beautiful, useful and Guild masters should require all their members to own a copy as a matter of course.

the top of their monitors? These are people to avoid; conversations with them are likely to be fruitless and meandering. So it is with system tray icons. If I go round to a neighbour's house, or someone who is pretending to be my friend for long enough to get their PC fixed, and I see more than eight icons in the system tray, I know I am in for a long, tedious repair session.

Lots of programs would like to add a presence to your system tray but very few have any compelling reason to do so. The one that shows when I am touching the trackpad on my laptop? I am already aware of this fact. The one that tells me the network cable is not plugged in? That's because I am in the treehouse. Even the volume control icon is only a pale imitation of the actual volume knob on the speakers

on my desk. System tray icons are like bumper stickers. We think we are adding personalisation and panache to our lives with each one we add. In reality, we only cheapen ourselves and clutter the vista.

*RealArcade* is precisely this sort of unwarranted lifestyle detritus. I'm not going to get into why you would want 20 varieties of downloadable Mah Jong, but how urgently would you need to access such a service for you to need an icon on the system tray? Perhaps the greatest service that *RealArcade* has done you is precisely to clear your system tray of everything else. If you stubbornly persist in resurrecting this entirely useless electronic midden, heading over to **Start➔ All Programs➔Accessories➔ System Tools➔System Restore** will let you roll back to the status quo

## Dynamic Warcraft signatures
Because everyone needs to know your alchemy skill



**1 What is a sig?**
Forum sigs are those graphics at the bottom of your posts that tell everyone how clever you are. In *World of Warcraft* forums, you really need one that shows your class and race and level without you needing to change it every time you ding. You need to pay a visit to www.rpgoutfitter.com, in other words.



**2 Grabbing the data**
To collect the data from the game about your XP levels, you need to install the *Warcraft* addon called *CharacterProfiler*. Open your **Character** pane in *WoW* and press **Save**. This stores the data in **c:\Program Files\World of Warcraft\WTF\Account\<your account>\SavedVariables\ CharacterProfiler.lua**



**3 Taking your photo**
The picture of your character doesn't form part of the signature – that uses graphics from the *WoW* fansite kit. You can use the *CharacterPaperDoll* addon to take a self portrait that can be used in your forum profile or to customise the signature file. Open the character pane, click **Pic** and take a screenshot.



**4 Putting it together**
Upload both the **CharacterProfiler.lua** file and the screenshot of your toon at www.rpgoutfitter.com. You'll need to create an account and click on **Upload Profile**. This will then give you the image link to the signature file that you can paste into your account profile for any forum that accepts graphical signatures.

## DISK DRIVES
### Burning drives

**Q** I have been an IT manager for eight years now, and we are blowing up hard drives a lot. It started about two years ago, the HDs then were Western Digital, 80GB, 7,200rpm.

They started failing, so I swapped them out and the drive failures continued unabated. The reasons were motor failure, head damage and PC board damage. At the peak I was losing a HD a week. This year we started losing main boot drives and server drives. After trying different versions of WD hard drives we changed to Seagate. This has helped but just last week a new four month-old P4 3.6 PC with a SATA 160 Seagate stopped working without warning, apparently because of head failure. Three days later my secondary hard drive failed, then the next day the main drive also gave up the ghost.

These are the only three Seagates we have lost. Western Digital losses are close to 40 hard drives, four of which were other PCs here at work. Another two were external FireWire HDs. The longest I have had a HD is between one week to four months and no longer (all 7,200rpm drives). The only HD that has not failed in any way (touch wood) is the boot drive on our email server. It's a WD 20GB 5,400rpm, and it runs 24 hours a

## "Overheating is the single most common and plausible cause of hard drive failure"

day, seven days a week. How this drive ploughs on is beyond me.

I have tried changing parts and the whole PC, another HD make rewired the house to dedicated power with an online 2KVA UPS. I have looked at the problem from every possible angle.

**DEAN WILLIAMSON**
dwwd@africasafari.co.za

**A** Except overheating, am I right? Overheating is the single most common cause of hard disk failure. For consistent, regular, drive failure it is virtually the *only* plausible cause. If you live somewhere hot, as your email address implies, then you will need to factor in some extra cooling. Just

adding more case fans may not be enough because this can only exchange heat with the surrounding air. If this is already at 35ºC you are greatly reducing the amount of heat that the fan draught will extract. I suspect there are two reasons why the disk in your mail server hasn't ever died: it is probably in an air conditioned server room and it is only spinning at 5,400rpm. Drives generate heat in a roughly linear relationship with their spin speed, so a 7,200rpm drive outputs a third more heat than a 5,400rpm one.

## NETWORKING
### Wireless networking – ugh!

**Q** You will realise just how desperate I am, writing to you and laying myself open to the ridicule and vituperation that will inevitably come my way, but here goes.

My wireless network won't work. I have a Linksys broadband 802.11g router, into which is plugged my Blueyonder broadband; my desktop PC is hard-wired to the router, and my laptop is wireless enabled. Both my desktop and the laptop find the Linksys network, and there is absolutely no difficulty in either sharing the broadband internet access. But thereafter, nothing else works. The two computers just do not seem to see one another. I am fed up of running the XP small network wizard/ wireless network setup. My main concern is for printer sharing, for

my laptop to use the desktop printer, but I suppose if I get the two to see each other, I'll get file sharing too.

As far as firewalls are concerned, I use the XP firewall, and I am also running PCguard, which is a Blueyonder security suite that also includes a firewall.

**JOHN KENNETT**
john.kennett@blueyonder.co.uk

**A** This isn't a problem with the wireless network, you dolt! Not only can your laptop access the internet wirelessly perfectly well, but the wired desktop PC has exactly the same problem. We know that TCP/IP transfer works because you can use the internet,

so this takes us up through the physical, data link, network and transport layers of the OSI model. What you have is a problem in the next layer up – the session layer. This is where Windows File and Printer sharing operates, and my abiding notion is that either you don't have the client installed or (more than likely) it is being blocked by one of your multiple levels of ludicrous firewall redundancy.

If you have a decent router (and before you all start writing in to protest, I actually *do* count the Linksys in this category) with Network Address Translation (NAT) and Stateful Packet Inspection (SPI) then you already have a fiery enough wall to keep out every thing that you want kept out and them some. Enabling the Windows XP software firewall as well is already belt, braces and chastity belt. If you run a third-party firewall on top of *that*, well… that's like making all your houseguests climb in through the letter box.

Disable *PCguard* – it won't keep out anything extra worth a damn. Now open **Control Panel➔Security Center➔Windows Firewall**. Click the **Exceptions** tab and make sure that File and Printer Sharing is ticked in the list.

## BOOT PROBLEMS
### Stalled USB

**Q** I'm having problems loading Windows when I have a USB device attached to my PC, the device being my wireless keyboard and mouse. It installs on the USB and works fine but when I shut down and turn on my PC again, it loads as normal until after the Windows XP loading screen and then… nothing but a blank screen. It also does this when I have other USB devices attached such as flash disks or phone data cables. Is there any way to fix this problem? I've tried re-installing the software for the keyboard and mouse, putting it on a different USB port and it either stops at the boot screen saying no keyboard attached or causes the same loading problem!

**CHRIS**
andrew.ball@absamail.co.za

**A** Some motherboards just do this. When they boot up they sense an attached USB device and query it to determine its status. Until they get a reply the boot process just halts. But some devices are in no position to send any data back. This could be because they aren't receiving enough power on the USB bus yet or because they can only be woken up by specific commands from the driver software or because the "device" is just a cable with nothing on the end of it.

The easiest solution is just to wait until Windows has started before you plug the device in. You can't do this with the keyboard because the BIOS is moaning that it needs one to start. You can disable this in the BIOS setup but it is hardly convenient to unplug and reconnect your keyboard every time you boot. Sometimes changing the boot priority in the BIOS so that USB devices are checked *after* the hard disk for a boot partition works. Otherwise you'll need a BIOS update from the motherboard manufacturer. At any event, the answer lies with the BIOS.

## OS RIVALRY
### Linux schminux

**Q** I take it from your reply to David Patterson in *PCF182* that you are quite a way back in the queue for the job of Director of Linux Evangelism. It's interesting that you seem to dislike Linux as much as the Linux zealots dislike Windows, or "windoze" as these comic geniuses seem to call it, implying, falsely, that Windows users are in some way defective.

How is it that both parties are so venomous in their comments towards each operating system? Maybe you should have included Mac OS in your castigations as well? As I see it, all of these systems have pros and cons, and if Mr Patterson has a question, why not let him try Linux and see if it as bad as you think, without colouring his experience with your bias?

**TERRY PIKE**
pike@barripperzoo.fsnet.co.uk

**A** But it was precisely to colour his drab, resolutely monochrome experiences with my iridescent bias that David wrote to me, surely? I don't think I am particularly venomous about Linux. My main objection to it is not that it does any harm, particularly, but that it is a solution looking for a problem. My PCs run XP, my Macs run OS X. If I bought a machine with Linux preinstalled, I'd probably leave it on (I think that my Freeview box runs it) but until then, my default position is not to bother.

People who *do* evangelise Linux tend to begin by telling me that it's great because it isn't Windows, and then go on to tell me how it does everything that Windows does, and has been doing for some years now. In which case what's the point in switching codes? It crashes less, you say? If I drive my quad bike across the fields instead of taking the car on the road, I crash less often too. But only because there is no one else there to hit. **PCF**

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**Luis and Ned**

*Words* Luis Villazon *Pictures* Mark Mitchell

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## FAQ
### Silica



**Dull name, dangerous device.**

**What is it?**
Silica is a handheld, automatic, wireless hacking tool. It will scan all nearby devices for vulnerabilities and launch a barrage of hacking attempts.

**Is this thing on sale?**
It should be on sale in the US by the time you read this, with an expected retail price of $3,000 (about £2,000).

**What can it do?**
Silica can download any file shares it finds, or it can force hacked computers to connect to an external listening post. It's as if you had downloaded a Trojan, basically.

**Are all computers vulnerable?**
No. The 'point' of Silica is to make it easy to find computers that have unsecured guest accounts, firewalls switched off, that sort of thing. If you run Windows Update, use wireless encryption and take sensible precautions, Silica can't touch you.

**Why the quotes around 'point'?**
Because the unspoken market for Silica is obviously wardrivers. You can just put one in your pocket and wander into reception posing as the sandwich boy while confidential files just stream into your greasy clutches.

**Is this likely?**
The high price tag will put off most script kiddies, but part of the marketing for Silica is the "If you don't buy one, your competitors will" argument.

**Read more at:**
www.immunitysec.com

# state of the art #18

## THE LATEST TECHNOLOGY EXPLAINED

# Hard disks get Flashy

Flash memory may not be taking over from your regular hard disk in the near future, but it could still be playing a more significant role before long, explains James Morris

**T**he hard disk has been with us for longer than you'd realise. The first examples materialised back in the 1950s, and the IBM Winchester format which we still essentially use today arrived in 1973. Since then, pundits have predicted the hard disk's doom more than once. With the rise of Flash memory in mobile devices, which have been pushing down unit prices, it is expected that solid state disks (SSDs) will take over from the mechanical variety sooner or later. But while there are no signs of this happening just yet, there is new technology bubbling under which could see Flash memory taking a greater role in PC storage.

### DRIVE TIME
The spectre haunting HD technology is the 'superparamagnetic effect'. This supposedly sets a limit on how small the magnetic grains on a hard disk can be. Below a certain grain size, the temperature rises enough to reverse the magnetic polarity of grains. This makes the hard disk unreliable. For the time being, the superparamagnetic effect is being held at bay by new developments like perpendicular recording (see *PCF192*) which allows the use of larger grains by stacking them on their ends perpendicular to the hard disk surface. With traditional recording, grains run parallel to the disk surface, so take up more room. In the long run, though, perpendicular recording will only delay the hard disk's execution.

Flash memory also requires much less power than a mechanical disk. Hitachi's latest 5K160 2.5in disk consumes 1.8W when reading and writing, and 0.8W when idle. In contrast, Samsung's Flash-based SSDs require 0.5W for reading and writing and an infinitesimal 0.01W when idle.

Additionally, Flash offers much lower access times than those of a hard disk. Western Digital's 10,000rpm Raptor X, the fastest SATA disk currently

## ROBSON OVERVIEW

**Intel's Robson technology puts the Flash memory on the motherboard, connected via PCI Express to the Southbridge chipset.**
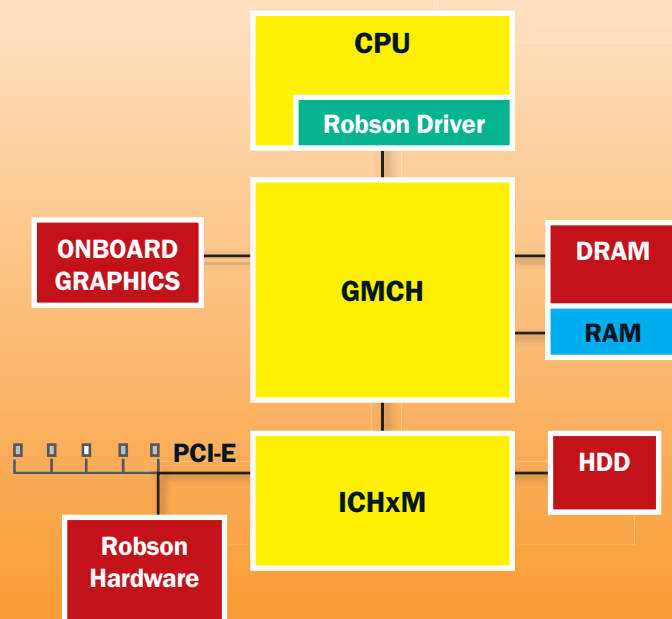
CPU

Robson Driver

ONBOARD GRAPHICS

GMCH

DRAM

RAM

PCI-E

ICHxM

HDD

Robson Hardware
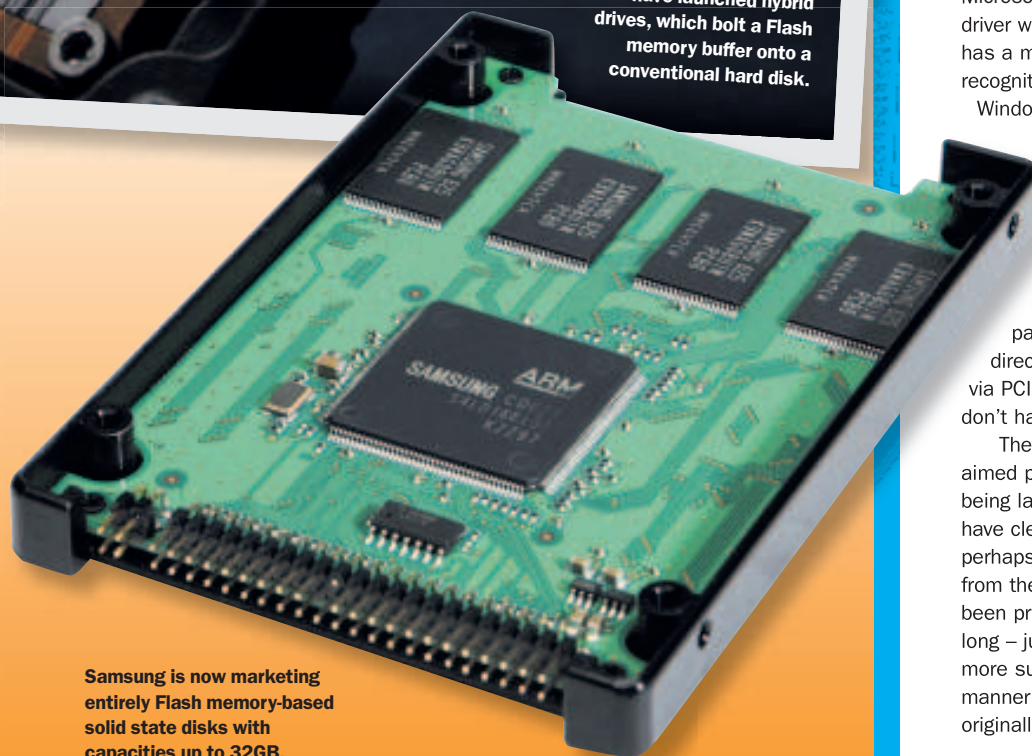
available, has an average access time of around 8ms. But Flash memory can be accessed in under 100 microseconds, nearly 100 times faster. As result, Flash hard disks offer boot up times 25-50% quicker than conventional hard disks.

On the down side, Flash memory is still only available in fairly meagre capacities, and those are hideously expensive. The largest SSD available is the 64GB DiskOnModule 2.5in model from PQI. Most SSDs are 32GB or less, with prices around the $1,700 mark – over 25 times as much as a 2.5in HDD of similar capacity. SSDs still can't quite compete with HDDs for sustained transfer, either. Samsung claims 57MB/sec reads for its SSD, which is comparable to a 2.5-inch notebook HDD but around 10MB/sec slower than the latest mainstream 7,200rpm 3.5in SATA HDDs. Write speeds, however, are a more meagre 32MB/sec.

## MIX AND MATCH

So, SSDs have their good and bad sides compared to HDDs. This has led to a new idea: why not use both at the same time? Samsung was the first to publicise the concept, and has been talking about its Hybrid Hard Disk (HHD) for the last year. This bolts 128MB of Samsung's OneNAND Flash memory onto a regular hard disk. The Flash is used as a buffer, storing write tasks until it is full. Only then is data written to HHD. This way, during times of light usage, the hard disk can remain idle or even in sleep mode for much longer. Samsung claims this reduces power consumption by an average of 9%. Seagate's Momentus 5400 PSD takes a similar approach, but uses twice as much Flash (256MB). Seagate maintains the greater capacity reduces power consumption by as much as half.

Since Flash maintains its data without power, it's an ideal place to store part of the hibernation file. Seagate argues this reduces recovery time from hibernation by 20%. Using a Flash buffer can also extend the life of your hard disk, which is usually measured in terms of the average number of hours it can be in use before failure occurs.

Despite Samsung being the first to publicise the HHD, it was developed with Microsoft. In fact, two technologies within Windows Vista will make use of it. ReadyDrive is what Microsoft calls support for HDs within Windows Vista, and a driver will be needed to manage the process. But Microsoft has a more surprising take on the hybrid idea, too. In recognition of the ubiquity of Flash RAM thumbdrives, Windows Vista will also contain ReadyBoost, which anyone can use. Instead of having the Flash caché built into the hard disk, ReadyBoost can use a thumbdrive instead. Indeed, in July Samsung launched a 4GB ATA SSD aimed specifically at ReadyBoost.

Perhaps the most viable version of the hybrid idea is the one Intel is currently calling Robson. Instead of relying on the hard disk or third-party add-on for the Flash memory, Robson places it directly on the motherboard, connected to the Southbridge via PCI Express. That way, any disk can be used, and you don't have to worry about compatibility issues.

The benefit of ReadyDrive is to power consumption, so it's aimed primarily at portable computers. But with 4GB already being launched for ReadyBoost, the hybrid idea is starting to have clear implications for the desktop PC as well. So perhaps the SSD will take over from the HDD as has been predicted for so long – just in a slightly more surreptitious manner than we originally expected. **PCF**

**Samsung and Seagate have launched hybrid drives, which bolt a Flash memory buffer onto a conventional hard disk.**

**Samsung is now marketing entirely Flash memory-based solid state disks with capacities up to 32GB.**

NEXT MONTH
VOICE RECOGNITION
HAS THE TECH REALLY ADVANCED SIGNIFICANTLY IN THE LAST 20 YEARS? WE INTEND TO FIND OUT

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# Battlezone II

## REDISCOVER an RTS/FPS years ahead of its time

**T**his excellent genre mash-up plays as well today as it ever did. It even *looks* as good. Recent discoveries in the Kuiper Belt may have demoted the solar system's most distant planet to a jumped up asteroidal 'Pluton' but in Pandemic's alternate 1990s timeline, Pluto has other, far more sinister worries. The Scion are invading one planet at a time and it's your job to see they don't get too far in.

*Battlezone* combined good old first-person shooting with driving and flying, but it didn't stop there. At its heart *BZII* has the resource management, building and fighting trinity of a thoroughbred RTS. The only difference is you got to drive around and shoot stuff yourself.

As well as the design achievements, *BZII* also had a storyline with two distinct moralities in the singleplayer campaign that lead to two very different games. This even led to the game being significantly shorter in one storyline, a brave moral statement it's hard to see other developers emulating today, just six years later.

If you missed it the first time around don't miss the chance to see why this game is *still* ahead of today's competition.
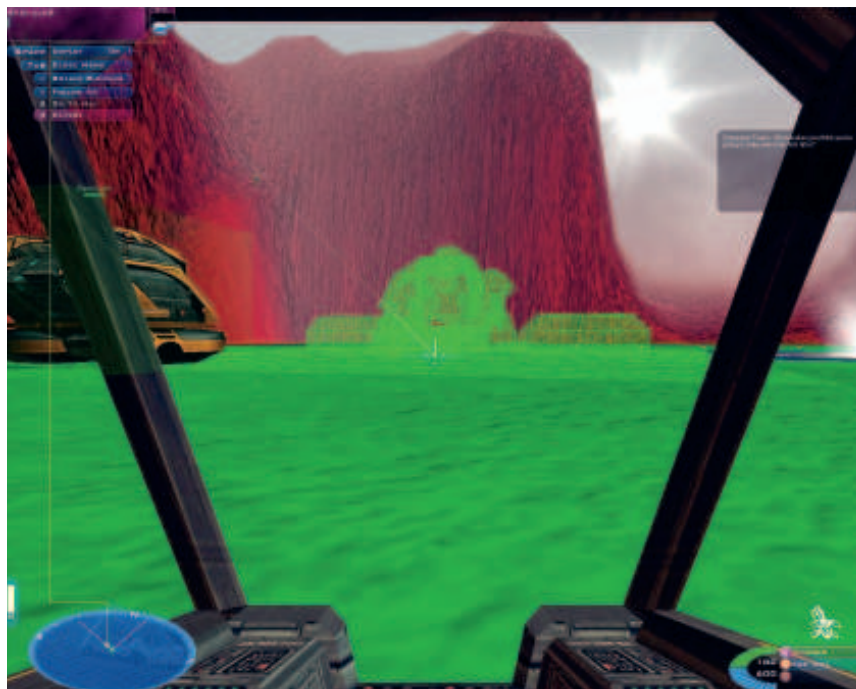


See that? That's the green, green glow of *potential*, that is.

```
FALSE PROPHETS
"IT'S UNLIKELY THAT YOU'LL EVER BE ABLE TO DOWNLOAD THE
ALBUM OF YOUR CHOICE FROM THE INTERNET." PCF62, 1996.
DAVID BOWIE'S ONLINE-ONLY TUNE TELLING THOUGHTS MADE US
THINK EXCLUSIVE TRACKS WERE LIKELY, BUT SURELY NEVER
WHOLE ALBUMS? NEVER…
```

# Thermonuclear Domination

**L**et's face it, Defcon is just a *WarGames* rip-off. It's a great rip-off, but it's not the first. Take a look at *Thermonuclear Domination*. It's a freeware simulation of *Mutually Assured Destruction* using the same kind of vector graphics as *Defcon*. The difference is that this game relies on your skill with intercontinental missiles. You have to aim ICBMs by guessing angles and power needed to hit worldwide targets. Find this great freeware on the disc.



**Get more info at**
www.cornutopia.net

# The USBBQ

## REINVENT Hungry? Can't be bothered to leave the PC? You need this…

**S**ome may argue that with today's motherboards incorporating all the portage you need (not to mention all the extra USB hubs built into keyboards, monitors and just about everything else these days), there's really no use for a USB PCI card. But some clever Japanese chaps have found a use for six. In one rig. With each card supporting five USB outputs, the power generated by this absurd contraption is enough to supercharge one of those USB mug-warmers none of us could live without to a sufficient temperature on which to cook beef. Who wouldn't want to cook beef while they play? Admittedly the frying area wouldn't let you feed a family of four, but it's perfect for a late-night snack. If you can decipher the Japanese, their site (**xe.bz/aho/24**) has a tutorial and some videos.



Mmm, freshly cooked beef while you game. It's sure to catch on.

"WHEN YOU DEVELOP A GAME, YOU NATURALLY HAVE A GOOD FEELING ABOUT IT. THAT DOESN'T SAY ANYTHING ABOUT WHAT THE PLAYERS WILL THINK OF IT"

Thomas Häuser, Project Lead, Blue Byte
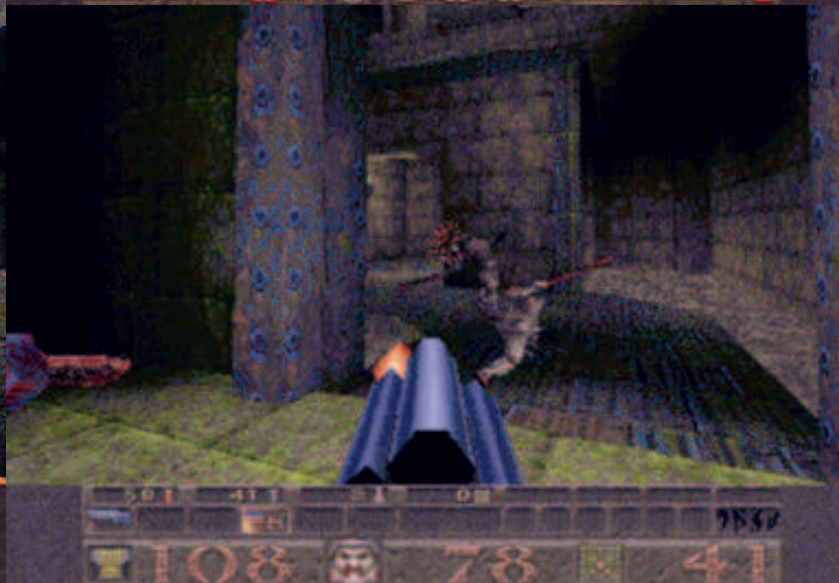
NOVEMBER
1996

GAME
QUAKE

SCORE
PCF62 95%

# REMEMBER...

*Quake*? Of course you do, you never forgot it. But do you remember exactly *how* it was revolutionary?

**O**ur review of the original *Quake* was effusive: "Give it six months (so the programming nuts can learn all of its little ins and outs) and the sheer scope of *Quake* will amaze you more than ever," we chirruped. Believe it or not, *Quake*'s now been with us for a decade, and the game's still going strong in some corners of the internet.

Back then, of course, it was utterly revolutionary. We'd seen what id could do with *Doom* but *Quake*, with its full-on 3D environments and characters (as opposed to 2-and-a-half-D trickery) was unlike any other shooter. If you can believe it, this is a quote from the review: "We quickly learned that the only way to win was with the mouse." A *mouse* eh? Fancy. You see before *Quake* you could get away with keys or even a *joystick*. The option screen even has joystick *settings*! Now we all know that *Quake* was the mother of modern shooters, but it's well that ten years on we remember exactly *how* it changed things. It's telling that we feel odd talking about *Quake* here – the game still feels like a very relevant part of our game-o-sphere. That's the signature of a true, milestone-importance classic.

## ALSO OUT THEN...



**SYNDICATE WARS**
*Syndicate Wars* was a surprisingly worthy sequel to the superlative *Syndicate* and every bit as dark, brooding and emotional as the original. For its time, the graphics and sound effects were outstanding, with the explosions a particular highlight.

SCORE
PCF 92%



**BROKEN SWORD**
This game proved that point-and-click adventure wasn't a dying art, just one that requires talent. More than any other genre these 2D narratives require a gift for storytelling, for exposition through play and *Broken Sword* absolutely nailed those things.

SCORE
PCF 90%



**SIMPSONS CARTOON STUDIO**
In 1996 *PCF* obviously adored *The Simpsons*. Nothing else can explain why this collection of clipart and sound samples earned a whopping 81% back in issue 62. In hindsight though, it seems you *can* have too much of a good thing.

SCORE
PCF 81%

# LookingBack

## THE CREATOR'S CRITIQUE

The hexagonal grids led to many a web-like walkway.

Your knights were polite, knocking on doors for a fight, but you could forget friendly multiplayer.

# Settlers 2

## Kieron Gillen discovers that after *Settlers* was over, it wasn't settled at all

**W**e've all played armchair designer at one stage or another. Sitting around playing the latest game and thinking "You know, this is pretty neat, but if I was in charge I'd have done this and this and of course *that*" before going off and getting on with our lives. Except, there was a time a few years ago when if you were in the right place at the right time you could put your ideas where your idle whimsy was.

Take Thomas Häuser, who has always been a programmer by profession. He certainly resists being labelled a programmer/designer. "I started as a programmer," he argues. "I am much more likely to describe myself as a

*Settlers* was rapturously received on its release.

programmer than a designer. I very much like games, and gameplay and design problems… but I wouldn't voluntarily describe myself as a game designer."

Häuser was working at Blue Byte around the time the first *Settlers* game was released. That was an innovative economic real-time strategy game, which ignored the cut and thrust of the Westwood model for carefully considered construction. "I'd finished a project – I'm not sure which one – and *Settlers 1* was about to be finished," Häuser explains, "so I did some QA. I'd played *Settlers 1* and had a list of improvements which I'd have liked for *Settlers.*" However, it wasn't to be. "There wasn't time for this, so I went to the Blue Byte boss at this time and asked about the improvements and he told me… just go for it," relates Häuser, "So we started *Settlers 2* development. I did all the concept work. I did most of the programming. It was a very small team – about four people. That's basically how *Settlers 2* happened."

### SETTLE DOWN
So what was actually on this list which birthed a game. "I have no idea any more," laughs Häuser. "When you do these things, you don't

> **"As well as fixing faults, the pace of the new game has accelerated"**

think in 10 years someone's going to be asking you about it, so I just threw it away. I think it was a lot about the interface. The interface of *Settlers* was a little complicated. Something about feedback. I'm not very sure about some of the explicit details."

The environment of the game's gestation lingers more in Häuser's mind. "A decade ago teams were smaller, and times are now very different," he recalls, "My co-coder at this time is still a very good friend of mine, even though I haven't worked with him for years now. I still feel very much related to him. It was a much more dense working atmosphere – and I was 10 years younger, of course. We were working 20 hours a day when it was necessary, and these things I don't do any more today". He especially remembers the last few days of the project, with its curious mixture of elation and depression. "I was very pleased," Häuser says, trying to find the English to explain the complicated feelings, "But we'd worked so much on *Settlers 2* that it was a very tough time. I remember the last five days before mastering, I think I'd slept for about four hours or so. When the master was shipped out, I still remember it. I go to the garage, took my motorbike and went out motorbiking after five days of not sleeping because I was so – how do you say – upset? Overwhelmed that it was done?" That it was to be loved by others as much as they loved it was a pleasant surprise. "When you develop a game you have a good feeling about it, but it doesn't say anything about the ratings or what gamers will think about it," Häuser notes, "but when it turned out to be very successful, we were very pleased. Still, even then, there were elements which didn't work as

*Settlers 2006*: graphical flourishes abound, but the core *Settlers* experience hasn't changed significantly.

## Developer Diary

Alistair Halsby on online gaming, the laws of physics and cheats

**W**ouldn't it be great if everyone played games against everyone else in the entire world? Wouldn't it really be something if games were exactly the same in singleplayer as they are when you play them across the net? Unfortunately the laws of physics are against this idea becoming a reality any time soon.

One obstacle to this proposed state of gaming nirvana is the perennially pesky speed of light. A lot of games feature 'twitch' gameplay – more often than not players use their reflexes to beat their opponent in online firefights and the like. In a network game, we have to take into account the fact that the laws of physics don't make everyone's reflexes as slow as a drunken hedgehog – which is quite tricky.

It takes about 0.06 seconds for a computer based in the UK to send data to the US. Wouldn't it be nice if all our pings were 6ms? Unfortunately, we don't just have errors (static on the line) but we also have to stop anyone trying to cheat. Imagine – in a perfect world with no cheats, we could halve everyone's ping times, and double the response times of online games.

Sadly, we can't trust information that's sent from individual gamers' machines – most players would never cheat, but it only takes one to ruin a game for everyone else who's playing. This means we have to double the communication time between servers and individual machines, because eventually, cheating would become widespread.

Everything that players do during games has to pass through a server, which is there to check that no-one's cheating. At the moment, this means minimum ping times of 0.2s or so, and usually higher, unfortunately. Multiplayer gaming is here to stay, and is gaining popularity as broadband user figures continue to rise, but I reckon that for decades – unless someone comes up with a way to transfer huge amounts of data instantaneously – there will still be multiplayer designers fighting the same battles we're currently waging against the laws of physics (and cheats). Until that day, though, I'm afraid we'll just have to put up with lag, and accept it as part and parcel of playing games online.

*Alistair Halsby is Lead Designer of* Dark Messiah of Might and Magic, *www.darkmessiah.com/uk*

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well as they wished. "Things like the help system," he laughs, embarrassed, "There was none originally, to be honest. The player had to work really hard to get into the game, and there's lots of details in the games you'd have to learn the hard way. It would have been a great help to a new gamer, if we had some put in." Then there was the oft-maligned ship-transport system. "Even after patching, it doesn't work as we wanted it to," Häuser laments. "I remember the ships did not transport the things you wanted to other islands… we couldn't solve this problem at this time. Because at this time, the development systems were much more difficult to use and we don't have the ability to debug code as we do today. It was just not working as we wanted it to work."

### ENDURING POPULARITY

Impossible to make it work then, but not now. Häuser is involved in the fascinating project at Blue Byte of completely renovating *Settlers 2* for a modern audience. "It has been on my mind for quite a long time," when asked about it. "Even after all this time there were calls on the internet "*Settlers V* is still a very good game, but *Settlers 2* is still number one." We started looking at *Settlers 2* and found ourselves playing for hours and hours. We took it out of the box eight or nine years later, and you play and you're instantly transfixed… and that was the start of it. We thought about what we could do. How could we transport this game into 2006?"

It was decided it would be a renovation rather than a reinvention. "The big issue we had to

> **"A decade ago, teams were much smaller – things are very different now"**

consider once we'd decided to go back to the game was to avoid changing popular elements significantly. If you talk to people about *Settlers 2*, a lot of players have many ideas how to improve it. This leads to a very big problem," Häuser notes, "You can add a lot of features to the game, but it instantly detracts attention from the game's core principles – those key factors that made people fall for it in the first place. For example, if you allow direct control of the military or give more detailed control about what is transported from where or asking an individual woodcutter to chop down a tree because it's in the way for something you want to build a farm… it completely changes the game. We decided not to change any of these game mechanics at all. It wasn't easy to tell people that."

As well as fixing faults, they've added much to accelerate the pace of the game. As, looking back at *Settlers 2* after almost a decade, revealed some aspects of the game virtually forgotten. "I was amazed by how much time people spent with the game. To play a *Settlers 2* map… it must have taken hours," Häuser laughs, "That's really amazing. And there are maps in the new *Settlers 2* which will take between six and nine hours, but it's OK. It's really good playing the game for that long still, but we have accelerated a little bit. We have to have this game pace which doesn't push you too much." And considering *Settlers 2*, the constant irony is that a game which is such a relaxing experience to play clearly provoked so much actual *stress* in its creators while it was being made. **PCF**

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## Remake, remodel

### Going back to the drawing board with *Settlers*

The idea of remaking a successful old game entirely for a new audience is not a new one, though it's far from unique. Bohemia's Flashpoint remake, Armed Assault, was well received recently, for example. What changes a developer makes are of interest, though. While the core mechanics of Settlers 2 remain the same, some tastes change over the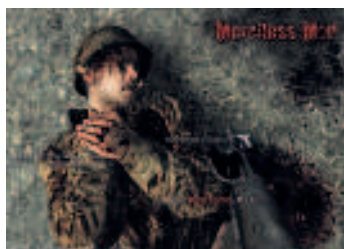 years. "When we started to play Settlers 2, we were amazed how slow everything was," Häuser notes, "It was a very slow game to play. We can't do that in the modern gaming market, so we had to speed the game up a bit."

# ReFresh

## OLD GAMES, NEW LIFE

## The Mod Squad
### Squeeze a little more out of tired games

### Merciless Mod
**Game** Call Of Duty 2
**Web** www.mercilessmod.com

While it's accepted that World War 2 was horrific, shooters such as *Call Of Duty* usually tone down the gore; it makes for less guilt, more fun and a lower ESRB rating. Making something of a mockery of the phrase "game experience may change during online play", the Merciless team has transformed *Call Of Duty 2* multiplayer into a nightmarish bloodbath, full of fractured skulls, burning corpses and screaming. The horror...

### Napoleonic Total War
**Game** Rome Total War
**Web** www.thelordz.co.uk

While you're sitting there waiting with baited breath for the next instalment of the *Total War* saga, why not strap on the shiny boots of Napoleon? With all new models, textures, interface and weapons you can take part in the historical battle of Borodino in singleplayer, or fight each other in the multiplayer. There is no campaign, but the Borodino scenario slowly unfolds in a nicely cinematic way.

### HONOURABLE MENTION

### Farm Cry
**Game** Far Cry
**Web** www.toxicdream.co.uk
Time to break with Mod Squad tradition. This mod isn't anywhere near complete, but it does look so interesting that we think it's important people start harassing the creators and making sure it gets finished. Using the Crytek engine, Toxic is creating a round-based competitive farming simulator. Two teams battle it out to create the best farm, choose what crops to grow and competing at market. Sounds like a grower. Arf.

## MMOG Log

### The *Unreal*-powered *Stargate* MMO's really real

**C**heyenne Mountain Entertainment, developer of the new *Stargate Worlds* MMOG, has announced it will be using Epic's Unreal Engine 3 – and it's very excited about it. This will please fans of the movie and series, as it pretty much guarantees the game will look amazing when it's finally finished. It shouldn't take too long, either, as *Unreal 3*'s toolset is regarded as one of the best for developers to create original content with.

The game itself is being described as half FPS, half RPG, incorporating many elements of the *Stargate* universe such as problem solving, archaeology, science and diplomacy. You can check its progress over at the **www.stargateworlds.com** community site.

Meanwhile, excitement over *Pirates Of The Burning Sea* continues to grow, with a new video released showing a fearsome sea battle between two players' ships. The engine's looking rather special, with realistic water effects (well, they had to be, didn't they?) and insanely detailed ships. Let's hope everyone's not sick of the sight of mangy parrots, eye-patches and peg-legs by the time they finally launch.

## RE-RELEASES THIS MONTH
### Once more, with feeling
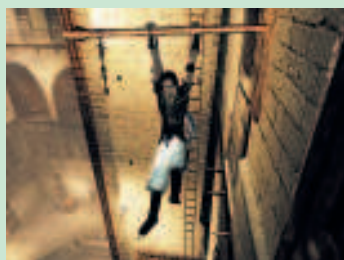
**Prince of Persia The Sands of Time**
**Sold Out ≫£5**
This fourth iteration made by the series' creator, Jordan Mechner, sees you attempting to restore order to the land by jumping around a lot and recovering a bit of sand.

**Worms 3D**
**Sold Out ≫£5**
The cute invertebrates' first 3D outing may have been a little complicated, but it still retains the wriggliness of its 2D predecessors. A crisp fiver for some tasty multiplay? Can't go wrong.

**Hidden and Dangerous 2**
**PCG Presents ≫£10**
Here, you take command of a crack troop of SAS operatives in Africa and Asia. Though it was cruelly neglected first time round, budget is an ideal way to revisit its genre-bending.

**Civilisation III Deluxe**
**PCG Presents ≫£10**
If you're not sure whether the excellent *Civilization IV* is for you, then take a look at this bargain-tastic alternative. It should whet your appetite for the big one.

**TEXT TO WIN!**

You'll find every Western cliché in the book in gunslinging *Call of Juarez*.

# Bid low and bag an
# Alienware super rig!

## Your unassuming little phone could win you one of the finest PCs around

**ALIENWARE**
HIGH-PERFORMANCE SYSTEMS

**Most of us just** don't have the necessary folding stuff to splurge a couple of grand on a beast of a gaming rig. We've all had to make do with lowering the res just to get a game to run at a half decent frame rate at some stage.

No more, we say, and our campaign starts here. We've teamed up with Alienware to bring the light of high-power gaming into the life of one lucky, lucky reader. This Area-51 7500 has a 2.66GHz Conroe chip at its heart, the dual core joy of a 1GB NVIDIA 7950 GX2 and an eye-wateringly large 24-inch widescreen LCD monitor.

We're holding a reverse auction, where the lowest unique bid wins the PC. To win, your bid not only has to be the lowest but also the only bid of that value. So, you could try a 1p bid – but if someone else bids the same, you lose. For every bid you make, you'll receive a reply telling you whether you hold the lowest unique bid. You'll also find out if your bid is unique, but not the lowest.

Of course, if your bid isn't unique, you can always go back in with another offer. **PCF**

## HOW TO ENTER

Bidding is simple! All you've got to do to win this beautiful PC is text the word ALIENWARE, then a space, followed by your bid in pence to 80876. So, if you want to bid £1.27, you'd text ALIENWARE 127 to 80876. Good luck!

### Simply text ALIENWARE (bid) to 80876!

## PC SPECS

>> **Processor** Intel Core 2 Duo E6700 2.66GHz, Conroe core 4MB Cache 1GHz FSB

>> **Memory** 1GB RAM 800MHz DDR2

>> **Motherboard** NVIDIA NFORCE 4 SLI

>> **Graphics card** 1GB NVIDIA 7950 GX2

>> **Monitor** 24" Widescreen LCD Panel

>> **Storage** 2 x 250GB SATA 3Gb/s 7,200 RPM

>> **Power suppply** 650 Watt PSU

>> **Optical drive** 16x Dual Layer DVD+/- R/W

# Over to you... HAVE YOUR SAY

## THE BEST FREE STUFF

*PCFormat* readers appear to be top blaggers who know how to save some serious cash. Here's the innovative ways you've got something for nothing recently…

PC kit doesn't come cheap. **2/3 of you have spent over £1,000 in the last two years** on new hardware.

Which is why we're glad to see **eight out of 10 readers** have also managed to get some kind of discount on their purchases.

Less heartwarming is the chap who claimed "years ago a flatmate nicked my bike. So **I swiped his unopened 3D card. With 4MB of RAM, it was better than my PC…**" Revenge is sweet, but it's also illegal, folks.

**Daleks or children? We know which we'd prefer to wake us in the morning.**

**Most of your free stuff** came from the workplace or friends' upgrades. But it's heartwarming to see the Freecycle network **(www.freecycle.org)** figuring highly on the radar.

**Kelkoo** is your favourite online price comparison engine, closely followed by **Froogle** and **PC Index**

**Zone.com** topped the list of favourite free games services, closely followed by space RTS **Allegiance, Kingdom of Loathing** and MSN Messenger's **Backgammon client.**

You're not all that clued up when it comes to geekery though. **2/5 readers don't know what GNU is**, while a staggering **73%** have never heard of **Creative Commons** or think it means 'free to use for all.'

**When** asked what your favourite free stuff ever is, one self-confessed hippy set the tone by telling us **'love'**. Most of you cite your **children**, but we take our hats off to the top blagger who managed to get himself a **FULL-SIZE DALEK** for nothing. You can keep the kids…

**Nearly 40% of PCFormat readers** have knowingly used **BitTorrent** for legal purposes. Almost all of them were for downloading **Linux.**

**Firefox**, **Audacity** and **AVGFree** are your favourite freebies. Amazingly, **only two readers cited Skype** as the best gratis app ever.

Of all the games you've played for free, **Day of Defeat is the one you'd have paid most for**. Bet you didn't buy the retail version though…

**Oh dear.** Nearly **one in 10 of you have fallen victim of a scam** by applying for what seemed to be a giveaway.

**NEXT MONTH** *PCFormat* issue 194 is on sale 25th October

Picture © REX

Stats are not based on anything like as scientific as a random sample.